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NEW AND OLD IN WAR SURGERY*

BY COLONEL EDWARD W. ARCHIBALD, R.C.A.M.C.

IT is probable that to most of you, and particularly to our Surgical Fellows, who, for the last two years cannot but have followed with the deepest interest the development of surgery in this war, the remarks which I shall make will bring little that is unfamiliar. Yet it is possible that one whose chief job has been closely to follow the progress of war surgery in its details and to build from those details some sort of panoramic view, may be able to give you from such a study certain conclusions of a nature to save you time and midnight oil, both of which, by the way, must in these strenuous times be conserved. That is the task which perhaps most belongs to a consultant, and the subject is one which, in times such as these, seemed to be the most appropriate for this annual meeting.

Months ago, when the invitation came to give this annual Lecture I accepted it with a deep appreciation of the honour, and, when asked to name my subject, replied with a certain unthinking casualness, "Oh, New and Old in War Surgery!" But due reflection showed the impossibility of covering so vast a field, and, to use old Geoffrey Chaucer's phrase "shortly for to say", I gave up the original too-ambitious plan of "New and Old in War Surgery" in favour of "Things New and Old in the War Surgery of the Legs—and Arms". After all, although it is said on good authority that an army marches on its stomach, it also marches on its legs; and moreover, it has to use its arms to use its arms. The infected wound of the extremities, with or without fracture, is still our problem of greatest urgency, and a comparison of our present practice with what was achieved in that first Great War, so full, in surgical as well as in military and political effort, of mistakes, yet so full of triumphs, is still worth while. In this war Surgery has already added a fine storey to the excellent house it built twenty-three years ago.

May I begin with a brief picture of what the Medical Corps had to contend with in the matter of infection during the last war, and then record briefly the progress it was able to make as the war wore on? I speak, of course, of wounds in general, but the advances made are most brilliantly exemplified in the treatment of wounds of the extremities. It is, in fact, questionable if the surgical treatment of wounds of the head, chest, and abdomen, has made since the last war nearly as marked advance in the saving of life as has the treatment of infected wounds of the extremities.

Compound fractures of the lower extremity and particularly of the femur, associated frequently with grave lacerations of the soft parts from the smashing and tearing action of high explosive shell fragments, constituted during the first year of last war a perfect horror. An unknown percentage of these wounded died where they lay at wounding, from hæmorrhage from the main vessels; and of those who survived and were brought to the main dressing station and the Casualty Clearing Station, many succumbed to shock in the first day or two; others to infection, chiefly gas gangrene, within the first week; others later on to general sepsis or secondary hæmorrhage. In fact this type of wound was, in the first year, one of the most fatal injuries of the war. This did not apply to the simple drill hole of the sharp-nosed bullet, steadied down to its true flight after a few hundred yards, yet, of course, also causing fractures. Such wounds frequently healed aseptically. The difference lay chiefly in the degree of destruction of tissues, and of shattering effect; in the greater loss of blood, in shock, and in the degree of early and virulent infection. In all these respects the high explosive shell was

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very much more damaging than the pointed bullet or the old-fashioned round shrapnel bullet.

The mortality of the first year or more in these cases ran up as high as 75 or 80 per cent in some statistics, and even the best figures approached the 50 per cent level. It has been the custom to ascribe the enormous improvement in these mortality figures which was brought about during the last half of the war to the introduction of the Thomas splint; and, doubtless, this is partly true. The Thomas splint became in the eyes of nearly all surgeons of that time a sort of sacrosanct object; some gave it a real adoration. And, indeed, compared with the old Liston splint, which was at first used, it deserved such tribute. But one is apt to forget the rather terrible conditions of warfare during that first year, at least in the northern half of the front line, running through the mud of Flanders and Belgium—conditions which one might describe briefly as ten or more days' tour in trenches knee-deep in water or ankle-deep in soft mud; cold that is so much worse because it is wet cold; extreme fatigue; fear, and mental distress of all sorts; lack of exercise, indeed of movement of any sort,—all this before the wounding! And then after the wounding, the pain, the lack of any effective splint for immobilization, the difficult transport down muddy trenches with many a jerk and sometimes a fall; in short, the horrid cumulus of pain, cold, fatigue, and fear during the long transport back from the field to the regimental aid-post, and from there to the main dressing station, and finally the ambulance ride over a corrugated or pavé road to the Casualty Clearing Station. It was this growing aggregate of misery which brought on shock.

But even after Sir Robert Jones, in 1915, provided the Thomas splint, and during 1916 pushed it up as far forward as the advaneed dressing station, or even the regimental aid-post, and in quiet times even in the trench dug-outs, the ambulance journey over the usual rough road still caused real pain and added shock. To meet this the suspension bar was added to the stretcher requirement, and from this the end of the Thomas splint was hung, so that the jars of transport were not communicated to the limb. Undoubtedly the splint did do much to prevent deaths from shock.

But there remained the factor of infection. The soil of Flanders, heavily manured for centuries, contained tetanus bacilli, all sorts of fæcal anaerobes, the anaerobic Clostridia of gas-gangrene and malignant œdema, and these found their favourable medium in the crushed necrotic tissues of the wound. Gas-gangrene was frequent; wounds were almost regularly infected by the ordinary pyogenic staphylococci, although infrequently by the hæmolytic streptococci; and tetanus was rife until antitetanic serum was given routinely in the advanced area. In how far, one asks, were these deaths from infection lessened by the regular use of the Thomas splint? For the really virulent infections, probably not at all, but for the lesser breeds, quite possibly a good deal. The rest afforded by immobilization, as Hilton showed us long ago, and as Orr and Trueta have demonstrated anew, does increase tissue resistance to all kinds of inflammation.

Nevertheless, about this period of 1915-16 other factors were coming in to diminish the mortality. If shock was prevented to a large extent by the Thomas splint, virulent infection was not. For the improvement in the mortality rate from infection, one must, I think, give a large share of the credit to another advance in wound treatment; that is, Depage's wound excision and the Carrel-Dakin irrigation.

Concerning the history of this operation of early complete excision of infected wounds, so unclassifiable, yet so enormously effective, a short paragraph may be of interest. It was a German, Friedrich, of Marburg, who, on the basis of a series of animal experiments, first proposed it, and that was in 1897; but the method did not gain wide acceptance, and it needed the Great War to make clear to surgeons its usefulness. On the Allied side the credit for popularizing it was given to Duval, of Paris, from 1916 on. But it was really Depage, the Belgian surgeon, to whom belongs the credit of priority, for he, from January 1915 on, had adopted "débridement and épluchage"* as routine, with primary suture when the case appeared favourable, or otherwise secondary suture as soon as the surface of the wound appeared to be clinically aseptic.

Carrel, already in the winter of 1914-15, was

* The word débridement, which many have adopted from the French as being synonymous with our term of wound excision, properly signifies only that part of the operation which removes a "bride", that is an obstacle. It therefore is applicable only to the enlarging of the wound through skin, fascia, and muscle, so as to gain a full view of the whole wound interior. The word épluchage represents the second part of the operation, consisting in the removal of all foreign bodies, loose fragments of bone, soiled bone, devitalized muscle, lacerated fascia, and bruised infected skin edges. The word in French means to clean a cavity by plucking out, or otherwise removing unwanted or injurious parts.

established at Compiègne, and was working out the details of the Carrel-Dakin method. Independently of Depage, he was doing a thorough débridement, but in his mind this was primarily intended to prepare and make accessible the wound interior to the irrigating fluid. Only in this way did he encourage us to expect a good effect from his elaborate technique of irrigation with Dakin's solution. The surgical world following him gave the credit to the irrigation.

On the British side, the adoption of the method did not come until on in 1916, that is officially, though individual surgeons were already in 1915 excising wounds in Casualty Clearing Stations and even at Base hospitals for superficially infected wounds. During 1916-17 it was widely adopted in Casualty Clearing Stations and the results were enthusiastically reported. But the experience of the last two years of the war gradually demonstrated that the preliminary early wound excision was the really essential factor, and not Dakin's fluid, in preventing the development of serious infection. By the end of the war this conception had gained general acceptance; and ever since has dominated the field of all wound treatment where infection must be expected, as much in civilian as in war surgery. It is probable, therefore, that the real explanation of the enormously improved results attained in the treatment of fractured femurs from shell fragments lies more in early wound excision than in the Thomas splint. It should be emphasized, however, that a proper wound excision, when the wound is a large one, much lacerated, passing close to the main vessels and nerves, with comminution of the bone, with also an exit wound, is an operation which demands some degree of skill, a reasonable knowledge of anatomy and a combination of surgical boldness with caution. Under circumstances of rush and forced clearing, many such operations were done imperfectly in the last war, and have been also in this war, during the retreat from France, and naturally with untoward results.

One must, however, suspect another reason for the unsatisfactory issue in a certain proportion of the wounds of war, one which does not obtain in those of civil life. That reason is the high velocity missile.

The effect of high velocity missiles.—While the wound lesions caused by the various projectiles of war upon tissues are fairly well known to surgeons, it is doubtful if the particular factor of high velocity is as generally recognized. And yet this factor should be known because its effects, particularly upon muscle, though also upon bone, explain in important respects the pathological conditions that are found during operation or at post-mortem examination, and therewith determine the nature and extent of the necessary operation. Long ago, toward the end of the last century, a series of experiments were published concerning this factor of high velocity by two German surgeons* who were investigating the lesions caused by a Mauser bullet at point blank range compared with those at various distances. Experiments were carried out upon cadaver heads. It was found that at point blank range and within a range of fifty to one hundred yards an extraordinary explosive effect was developed, which was explained as being due to hydrodynamic pressure. The bullet upon penetrating with enormous velocity (2,800 feet per second) a tissue containing a high proportion of water gives off to the molecules of the tissue a part of the force inherent in its momentum. Such force radiates at right angles from the path of the missile and is sufficient to necrose the tissue to a depth which varies according to the degree of velocity and to the nature of the tissue traversed. The greater the proportion of water in a tissue the more incompressible it will be, as water is incompressible; and the more incompressible it is, the greater is the proportion of the force that it will take up unchanged from the moving bullet, and the less of that force will it expend in a condensation of its particles. In this respect the cranium and the brain are, of course, peculiar, in the sense that the brain contains a high proportion of water and that the radiating force delivered by the bullet meets resistance from the rigid cranium.

The first effect on the cranium is fracture, which Tillmanns, using a cinematograph giving fifty views per second, was able to show occurred in 1/25th of a second, and that in a quarter of a second the cranium exploded. Nimier, later, in 1907, securing cinematographs at the rate of one hundred and twenty views per second, showed also that the head of a cadaver, set loosely on a block of wood, was actually lifted slightly off the block at 1/25th of a second, which would indicate a violent eccentric movement of the cerebrum, thus proving the radia-

* von Coler and Schjerning, 1894, quoted by Kocher in "Zur Lehre von den Schusswunden", 1895.

tion of force at right angles to the path of the bullet. Kroenlein reported the case of a man who committed suicide by shooting himself just above the left ear with the Swiss repeating rifle, model 1889, with a muzzle velocity of nearly 2,000 feet per second; the vault was burst open and the brain cast out nearly intact; the cerebrum with its two hemispheres was found two feet away from the head, torn off at the medulla, with its base badly lacerated and its convexity almost whole. A yard farther off lay the cerebellum of which, however, only the left hemisphere was well preserved. Browne, in *The Lancet* of August 26, 1893, reported a similar case, and still others were collected from the literature by Nimier, in 1907. In Britain, recently, this high velocity effect has been again investigated experimentally by Zuckermann and collaborators, this time making use of relatively small cubes of gelatin and a miniature missile fired from a pistol at muzzle velocity of as high as 4,500 feet per second, and controlled by very rapid photography. The extraordinary radiation of force or "stresses" was proved visually in an immediate enlargement of the cube to nearly twice its size, and, after the passage of the bullet, an immediate subsidence to its original size.

The points that must be emphasized are first, the explosive, disrupting, and second, the actual surface-necrosing, effects of any missile which is travelling at a velocity of over 2,000 feet a second. In the last war my experience included three cases which demonstrated the extraordinary depth of destruction of the brain tissue caused in this way. The history of one of these was that of a man who was admitted to the Casualty Clearing Station with a tangential wound across the forehead, caused apparently by a high explosive shell fragment. The whole of the right forehead and a part of the left, had been carried clean away, leaving a broad shallow gutter, filled with disorganized brain tissue. He recovered consciousness within two or three days, but never perfectly; his temperature shortly became normal; his wound, after being cleaned up, remained almost aseptic, and he went on for over two weeks in a fairly satisfactory condition. Nevertheless, the opinion was expressed as a reasonable forecast that cerebral necrosis would probably extend deep enough to involve the anterior horn of the ventricle, and in fact this was what occurred. Three weeks after the injury the liquefaction of the necrotic area led to a break into the ventricle of the right side, and for three days cerebrospinal fluid leaked away in considerable quantity. His temperature immediately rose to 103° and, finally, to 105°, and at the beginning of the fourth day he died. At post-mortem we found that the necrosis of the cerebral tissue had originally extended nearly two inches in depth, reaching the anterior horn of the ventricle, and this on both sides. There was no meningitis. Two other cases, subsequently observed, showed the same thing. In one, a parietal glancing injury, the necrosis had reached almost to the lateral ventricle. In another, a tangential wound of the vertex, the destruction extended actually down through the ventricle and into the optic thalamus.

Innumerable débridements in the last war and in the present one have demonstrated the fact that the same explosive action and the same necrosing effect occur in other tissues in varying degree. The softer tissues containing much water, such as the solid organs of the abdomen, kidney, liver, and spleen, and the muscle, show the necrosing effect much more than skin, which is elastic, or fat, which has not enough solidity of structure, or fascia, which is only a thin tough membrane, fairly dry. But muscle, which chiefly concerns us in this address, possesses an anatomical structure which seems peculiarly susceptible to this right-angled radiation of force. In the last war it was generally found, in the operation of wound excision, that it was necessary to cut out devitalized muscle bordering the path of the missile to a depth of at least two or three millimetres, indeed often the better part of an inch, before uncovering healthy muscle that bled or twitched. It was also found frequently that recesses in the muscle had been formed, which had to be carefully looked for with the help of retractors, and that these sometimes contained fragments of clothing or pieces of dirt, imprisoned by the falling back of muscle flaps. In other words, by its explosive action a high velocity missile can, as it were, "fluff out" the muscle tissue, as if one were blowing into a feather duster. It would seem reasonable to explain this effect by the somewhat loose structure of muscle which runs in compartments separated by thin trabeculæ. In bone this right-angled radiation of violence results naturally in multiple fractures, often with gross comminution, but also in so fine a comminution that the bone surface has been described as covered with a layer of "granulated sugar".

Now what has all this to do with treatment? It has this to do with treatment; that we must

never forget this explosive and necrosing effect on muscle, and the possibility, or rather the probability, that infection lies enclosed inside disrupted muscle recesses. Ignorance of these facts has led to partial excision, the continuance of infection, and bad results. It follows that an absolutely essential part of any wound excision must be a careful search for such recesses. There must be no lack in free opening, good retraction, and good light. Such a lack is what one suspects when one reads of disappointing results after "débridement", or after "débridement and local sulfonamide pack".

So much for the old war! What new thing have we in this war? Have we made during the intervening period, and as the result of recent experience, any advance in the treatment of the infected wound, and the broken leg? The question is an oratorical one. We all think immediately of two things in particular,—chemotherapy for wounds, and the "closed plaster" method, ordinarily called the Winnett Orr-Trueta method, for fractures. Let us consider first the closed plaster question.

The closed plaster method.—The historical aspect of this method of treating compound fractures is rather interesting, and Trueta, the Spanish surgeon, in the introductory chapter of his small book, published in 1939, gives an admirable résumé, and most generously ascribes credit to his predecessors where credit was due.

Neither Winnett Orr nor Trueta, it appears, was the originator of the principle. At least, Trueta gives that credit to the English surgeon, Joseph Gamgee, who in 1853 published a paper "On the Advantages of the Starched Apparatus in the Treatment of Fractures and Diseases of Joints", wherein he advocated absolute fixation by means of thin splints covered by starched or gum bandages, and infrequent dressings at intervals of one to several weeks, for wounds and war fractures. Gamgee emphasized, just as Trueta does, that, in addition to immobilization of the wound, pressure of the soft tissues was required to assist healing, and (as Trueta quotes with a touch of hidalgo gallantry) compared the necessary pressure to that with which one holds "the hand of a lady when one greets her".*

Gamgee's method would have been as modern as that of Orr and Trueta if he had added the principle of preliminary and early wound excision.

The chief virtue of "closed plaster" lay, Trueta said, in the *rest* secured to the wounded parts by immobilization and by the avoidance of frequent dressings. Antiseptics were useless, indeed might be harmful. But what was the closed plaster method in detail? Trueta's series of 1,073 cases, with only 6 deaths, deserves at least a summary. The material was practically all furnished by bomb wounds in Barcelona. The wounded man, as a rule, was brought by ambulance to the hospital inside of an hour or less. If shock were present, an hour or two was allowed for resuscitation. But as soon as possible the operation of wound excision was carried out with great care upon an orthopædic table, after which, if fracture were present, the bone ends were aligned under extension; then a gauze drain was carried into the depths of the wound, but no sutures were inserted. A small gauze and wool dressing covered the wound, and then a plaster cast was applied from the foot up to the level of the middle or upper abdomen. The "slab" or "girder" method was used in preference to the regular circular bandage; the plaster was applied on the bare skin, and was not to be renewed ordinarily under two weeks.

The immediate question in minds trained for more than a generation in Listerian principles, demanding daily dressings and the washing away of pus with antiseptic lotions, was, how can such a procedure avoid disaster from retained infection? Most of us are familiar with Hilton's lectures on "Rest and Pain", but we have been more familiar with Lister's papers on Antisepsis. Lister devoted a multitude of hours to his antiseptic dressings. It is an interesting reflection that these two systems, superficially considered, were thought to be mutually antagonistic. That of *rest* alone in the presence of infected wounds, as viewed by devout Listerians, seemed to neglect entirely the obvious necessity of attacking directly with antiseptics the organisms that were causing the infection. The period from, let us say, the 1880's on, even to the Great War and half way through it, was a period dominated by Lister's principles, whether of antisepsis or of asepsis. And thus we have throughout this period, after surgery had done its simple task, universally taught since the days of Hippocrates, of evacuating pus wherever it

* Dear old Gamgee! He wrote this in 1853. What an exquisite illustration of the old English mid-Victorian combination of "Sense and Sensibility", of the practical and the sentimental! How could one describe more practically to surgeons who were also gentlemen the exact degree of pressure with which the bandage should be applied? Or with what more gallant, yet respectful, phrase could one express it?

was found, the long series of irrigations with the multiplicity of antiseptic lotions, and the multiplicity of frequent dressings. The idea, therefore, of enclosing a fresh wound, but one which almost certainly was going to be severely infected, in an occlusive dressing such as by a plaster cast, with the declared intention of leaving that wound shut in and without change of dressings for a matter of several weeks, never during the Great War entered the minds of surgeons. Yet one exception must be made.

McKenzie in Britain, and Fraser Gurd here, have recently come to the defence of Rutherford Morison's claim to have originated "a new principle in surgery" (Morison's words), which consisted in "getting to the bottom of an infected wound so that it can be thoroughly cleansed mechanically and suitable antiseptics be applied; the wound can be closed at once with interrupted sutures, always with impunity, and many times with the prospect of finding it healed when the dressing is removed for the first time at the end of three weeks." The "suitable antiseptic" was of course BIPP. Morison treated fractures on the same principle, but with the natural addition of fixation apparatus; "suitable dressings and splints have then been applied and left undisturbed for from two to six weeks, when the fracture has usually been found to be united and the skin to be healed". He gives no figures in his little book to indicate his results, nor did surgeons generally adopt his method. He deserves the credit of priority in the last war for the principle of infrequent dressings and for whatever merit there is in the material used as an antiseptic, but Gamgee antedated all of them, Morison, Orr and Trueta in the principles of immobilization, gentle compression and infrequent dressings.

It was only after the war that Winnett Orr, as the result of his experience with chronic infected wounds and fractures in 1918, and of the necessity of transporting back to the United States a large number of chronically infected wounds, began to advocate the method of fixation and occlusion by the plaster cast (which he had already used in the treatment of osteomyelitis), and of dressings to be done only at intervals of several weeks. No wonder that Hey Groves confessed himself sceptical until Winnett Orr, in the early twenties, converted him by actual demonstration. Few if any surgeons followed Hey Groves to the penitent's bench. They perhaps remembered the old classical experiment which demonstrated the baneful effect of the pathogenic micro-organism retained in the body under tension, by inclusion or occlusion. That useful rodent, the rat, the end of whose amputated tail, by one of those marvellous tricks of the experimental bacteriologist, was suspended in a test tube containing millions of anthrax bacilli, suffered no harm; while his brother, under whose skin, through a hypodermic needle, a single anthrax bacillus was injected, died the death inside of twenty-four hours. Was drainage, at least, to be quite given up? On the other side, the enthusiastic proponents of the occlusive plaster and condemners of antiseptics and daily dressings were ascribing their remarkable results chiefly to the rest of wounded tissues realized by the skin-tight plaster cast. They were inclined to explain their success by the fixation and the gentle compression this secured; and they talked of the slowing of lymphatic drainage and the resistance of granulations.

The truth, as usual, lay in the middle way. Each side simply exaggerated the importance of its own point of view. In fundamentals they agreed. The antiseptic school were also using the principle of rest through fixation on splints, although imperfectly; and the advocates of more complete rest under the closed plaster were also using the principle of antisepsis. For the closed plaster method demanded *as a prerequisite* the operation, thoroughly performed by a competent surgeon, of *débridement* and *épluchage,* and this also to be done before the bacteria contaminating the torn and necrosed walls of the wound had multiplied and invaded the deeper tissues, a period which the careful investigations of Carrel and his French collaborators had determined in the gross as being from four to six, or occasionally as long as eight hours, after infliction of the wound. The knife, after all, was the best antiseptic for infections that were still lying on the wound surface. And, as to drainage, it also was provided sufficiently, though imperfectly, for wounds were to be left wide open. The plaster itself absorbed the pus, and stank with it.

It remains to assess the practical value of the closed plaster method. What were Trueta's results?

In his series of 1,073 cases of compound fracture of the limbs, most of them bomb wounds, there were 6 fatalities, 976 good or "satisfactory" results, and 91 "poor" results. He

had only one case of gas-gangrene (Colonel d'Harcourt in the same war had 20 in 5,000). Trueta claims that the general number of cases of gas-gangrene in the Spanish War was unusually high, but they occurred only in places where proper treatment was not used. In general the English surgeons who have carried out the method during the present war confirm Trueta's claims and are well satisfied. Lt.-Col. Macfarlane, of No. 15 General Hospital overseas, wrote me not long ago that they were trying out, in fractures of the femur and leg, a series of the closed plaster technique, some with and some without chemotherapy in the wound. He was not ready to compare results in these two series, but he was able to say that they were pleased with the closed plaster technique and intended to continue it.

Compound fractures in the last war, even at the end, still gave us a 10 per cent mortality, while Trueta claims a figure of 0.6 per cent. How are we to explain Trueta's success? One can only suggest possible reasons. There is first undoubtedly a great difference between the content of virulent bacteria in the soil of France and Belgium and the dust of Barcelona city. The one was intensely manured; the other had probably for years seen but very few animals in its streets. Secondly, there is a large difference in the time lag between the wounding and wound excision. In the last war it was much more often over eight hours than under, and in Barcelona it was under two hours very frequently. Thirdly, Trueta's method included a routine and thorough wound excision within the first hours, as an emergency, and such operations were done by himself and his assistants throughout, with great emphasis laid upon thoroughness, and perhaps, through practice, with an unusual degree of skill; whereas in the last war these wounds had to be treated by a large number of different operators, not all skilled, and often under circumstances of rush and general strain, which forbade a formal excision and compelled rapid evacuation.

In this connection it is interesting to note, as a digression, the fact that not all Spanish surgeons could claim Trueta's results. Several French surgeons at the close of the Spanish War had to take into army hospitals near the border in France a very large number of Spanish refugee wounded. Many of these were still in the closed plaster, having been operated on by Spanish surgeons some weeks or months before the final defeat. The report of the French surgeons was to the effect that a large percentage of these patients showed unsatisfactory results. Arnaud, for instance, in May, 1939, reports that about half of these wounded, who had apparently been operated on properly, had consolidated their fractures satisfactorily. The other half, however, showed "frankly mediocre" results. (And "mediocre" in French carries a worse meaning than does the same word in English.) Callus was often solid, but "seriously abnormal from progressive osteitic reaction". He found "many periosteal thickenings, with large painful callus and carrying many sinuses, enormous sequestra with suppuration, and many areas of destruction by infection". As to "fractures of the femur all were bad results". "It is probable", he said, "that there had occurred in the majority of cases displacement of the fragments, following the application of the plaster; certainly the position of the fragments was very defective". He went on to say that the worst results were those of joint wounds, of which apparently "none had escaped serious infection". The functional results, taking all the wounds together, "were very mediocre because of ankylosis and bad alignment". It was indicated that possibly this worse half of the wounded had been operated on by incompetent surgeons, and chiefly in the way of incomplete wound excision. The conclusion is obvious, that the success of "closed plaster" depends on the excision more than on the plaster cast.

I have received information from overseas that on our own side union in good position has not always been secured. And indeed malunion was the one most probable defect of the method that had to be suspected. I have been told that a number of the cases have had to be rebroken and reset in better position. It is indeed impossible, especially in the case of the femur, to be sure that a closed plaster, even skin tight, will continue to hold the fragments in the position in which they were set at the time of operation. Is it possible that Trueta's standard of a "good result" includes malunion, union of any sort being considered good?

It remains to enquire why these soiled wounds escaped so often an infection of a dangerous nature. They certainly do not escape the less fatal infections, for apparently every wound is expected not only to suppurate but to stink. Several reports are available, including Trueta's own, concerning the bacteriology of these sup-

purating wounds. Although the *Staph. aureus* was found practically always present, and in many cases pyogenic streptococci, even hæmolytic, and even in one case the virulent Group A streptococcus, and, of course, often *B. coli,* and non-pathogenic aerobes, there was a remarkable absence of the Clostridia of gangrene. Gas-gangrene is also found but seldom in the casualties in Britain, where, as in Barcelona, the wounded have been chiefly bombed cases in cities. In the last war these organisms were frequently found in cultures from open wounds during débridement without any later development of the clinical disease. We know that some strains are benign, and we know that many of the virulent organisms are removed by the knife and by irrigation, or are killed by the access of oxygen or by the bactericidal effect of fresh blood serum. Wound excision deserves the credit, not "closed plaster".

As to the streptococci, Hare, of Toronto, points out that the dangerous Group A type of streptococcus is very rarely present in the initial wound; and both Fleming and Stokes in the last war reported that streptococci of any sort were found at first examination only in about 10 to 15 per cent of all open wounds, although by the time a patient reached the Base Hospital the incidence of streptococci had risen to anywhere from 50 to 85 per cent of the cases. Hare's recent work has shown us that this is due to cross-infection during dressings in the wards, and possibly to carriers among orderlies, nurses, and doctors. Upon this basis he points out that the closed plaster method is probably of value by excluding the opportunity of such cross-infections in frequent dressings. Orr-Ewing, Scott and Gardner, as the result of a recent exhaustive examination of the pus under closed plaster cases in Britain, came to the conclusion that "the flora of wounds under plaster does not appear to differ from that of fresh wounds, and neither its character nor its fluctuations explain the efficacy of the closed plaster method", which they feel "must probably be ascribed rather to its physical and physiological effects than to any specific influence on the bacterial flora". They suggest also that the multiplication of bacteria is delayed for some days in wounds which are excised and cleansed within a few hours of the accident, and that some organisms appear to be permanently removed by this procedure. This subsidiary reason surely must be accepted as the chief reason, for we know that unexcised wounds under plaster will go bad much more often than excised wounds on a Thomas splint.

In their ten cases thus followed bacteriologically there was no routine use of chemotherapy, although sulfapyridine or sulfanilamide in relatively small dosage was given during treatment if inflammation developed, always oral, not local. In most, early excision of the wound was done, within a few hours. It is to be concluded that the fatal infections of gas-gangrene and acute streptococcal infection, were excluded, the first by the operation, and the second by the operation and by the plaster; but that neither, nor both, succeeded in excluding the ordinary non-pathogenic cocci and the saprophytic aerobes and anaerobes. These last we became familiar with in the last war. At Boulogne we saw many open wounds, arriving a few days after infliction, which were covered with a black malodorous layer which within a fortnight or less was cast off, revealing healthy granulations underneath. The infection was not worked out bacteriologically to a conclusion as it was so mixed a one, and relatively a benign one; but it was considered to be due chiefly to fæcal organisms, aerobic or anaerobic, unclassified, together with non-pathogenic staphylococci. The reported appearances of the closed plaster wounds at the first change of plaster remind one strongly of those just described. In both there is a period of a few days of fever at first, followed by subsidence and a recovery both of general and wound-health. The natural fear of the Listerian concerning imprisoned infection is found to be unjustified because early wound excision, with the removal of dead tissue, the restoration of a healthy surface well vascularized, free open drainage, and the admission of oxygen has got rid of the virlent organisms, leaving only the lesser tribes.

Surgeons have naturally feared another danger; that of acute swelling of the injured limb under the skin-tight plaster with the result of interference with the circulation and possible gangrene of toes, foot, or leg. Such things have actually happened, but it is astonishing how little one can find in the literature of this sort of accident. The danger would be all the greater, however, if the wound had torn any large artery and collateral circulation was hanging in the balance.

These dangers are admitted by Trueta, who warns others strongly about the necessity of

care. He forbids the application of closed plaster immediately after operation in all cases in which there is doubt about the circulation in the limb, and when it has not been possible to excise the wound thoroughly, and when there is an already established serious infection. It would seem that the method should be used only by surgeons of mature judgment, with the anatomical knowledge necessary for a proper wound excision, so that no harm is done by a combination of zeal and ignorance; and, finally, only when the patient can be kept under close observation for several days after the operation. He closes his book with these words. "Closed treatment should be employed only by those qualified by training to plan and undertake the first stages of the technique which are purely surgical. It is completely fallacious to believe that it suffices to enclose a wounded limb in a plaster of Paris cast to achieve the benefits of the closed treatment." The evidence now accumulated enables us to add that in all cases the interior of the excised wound should be powdered evenly with crystalline sulfanilamide, or still better, sulfathiazole, before applying a closed plaster, and this brings us to the second new thing in the war surgery of wounds; that of chemotherapy.

Chemotherapy.—Owing to lack of space in the printed lecture I shall have to confine myself to little more than a series of conclusions drawn from a study of reports of those who have used the sulfonamide drugs in war surgery. But, first, I shall allow myself a short historical note. Indeed it seems worthy of note that it was a German (in 1932) who discovered in the dye of red prontosil an agent capable of destroying streptococci; a German named Domagk; and it was a German who first proposed early wound excision for infection. Things like this give one a glimmer of hope that the wicked will ultimately cease from troubling and their tanks will ride no more. Yet that "pure Aryan race" of Goth and Visigoth that "blitzed" Rome, as now also London, Amsterdam, Coventry, and Belgrade; and that "pure Aryan race" of Prussia (with its 50 per cent Mongol ingredient) which within seventy years has waged five wars of aggression, and within twenty-five years let loose upon us two world wars of conquest, is still with us, as witness Europe and Russia at this moment. We can only hope that ultimately, after justice is done, and under firm treatment for a generation or two in a sort of reformatory, and an education which should not spare the rod, and with the abolition of a militaristic education, and, if ever possible, the eradication of the old ancestral Mongol-Germanic urge to live by loot, the Germanic family may be brought to a decent neighbourly way of life in which their particular type of brain will again make profitable contributions to civilization. Forgive the digression!

It was shown by Domagk that this substance could in a large proportion save the lives of mice infected intraperitoneally with virulent hæmolytic streptococci. You are all familiar with the extraordinary amount of work that has since been done along both experimental and clinical lines, in all countries, on both sides of the Atlantic, and with the great extension of knowledge, both as to variants of the original sulfanilamide and as to the selective value of these variants in a wide range of clinical infections. We now possess a volume of observations from British, American, and, not least, Canadian, sources, which supply such evidence in favour of the sulfonamide group, used orally, locally in the wound, or by both routes simultaneously, as to justify fully the recommendation to our Medical Officers of the Services that they should make routine use of some one of these sulfonamides in every case of potentially infected wound.

This statement expresses my own conviction. And I find that the voices of those who at first uttered doubts and urged caution concerning the value of sulfanilamide and its derivatives in controlling infection have grown rarer and fainter as the reports of both experimenters and surgeons have demonstrated their value.

It has now been established that local application of the powder in the wound is, on the whole, more effective than when given orally, but that in serious infections it should be given both ways. Sulfanilamide is by far the most soluble in wound serum of the five sulfonamides hitherto investigated, and therefore gives the highest and most rapid inhibitory power of all; but it has small effect against anything but streptococci, and its effect in the wound also lasts no longer than twenty-four hours, as it is quickly excreted. It is of very little use against gas-gangrene organisms. On the other hand sulfathiazole does all and more than sulfanilamide can do; it is very effective against the Clostridia of gas-gangrene, and against streptococci, and also, though to a less degree, against staphylo-

cocci. It is, however, much less soluble in serum, but, in compensation, it needs a much lower concentration than the others to exercise its bacterostatic power. It is also slowly absorbed, so that it retains its effect over four or five days. It seems to be definitely the best of the sulfonamides for general use in infected wounds. Sulfapyridine in effect and solubility lies between these two. Sulfadiazine, which has not yet been used extensively in clinical wounds, appears to be in experiment about as effective as sulfathiazole, but creates a greater danger of blocking the kidney with deposited crystals. Apparently its chief advantage to the patient lies in the relative absence of nausea. Sulfathiazole seems, therefore, to be the drug of choice for the interior of wounds that have been first débrided, but the other, though still important, objective of preventing secondary streptococcal infection from dressers, nurses or surgeons who may happen to be carriers, is equally well attained by the use of the much cheaper sulfanilamide, sprinkled on the wound surface at each change of dressing.

It would seem also that the sulfonamides are able to control the residual, comparatively harmless, infection left after early wound excision, which is the cause of the malodorous pus accumulating under closed plaster, and is more or less disregarded by Trueta as of no practical importance. At any rate several reports are to the effect that with the addition of sulfathiazole the wound is found at the first dressing clean and healthy and without odour. It is true that the same result has often been obtained by thorough wound excision alone.

Further discussion at the moment must be put aside, but, for the credit of our country, I should like to say that on the experimental side the most complete and the most satisfactory work hitherto done anywhere upon the influence of the sulfonamides in combating the gas-gangrene organisms has been done in Canada by Professors Reed and Orr, of Queen's University.

SUMMARY

To summarize: certain principles, based on the experience gained from both Old and New, appear to stand out.

1. All wounds inflicted by war missiles are potentially infected. The danger is greater in the case of high velocity shell fragments or bullets, and least in the case of low velocity bullets and small glass splinters.

2. The explosive effect of the high velocity missile, especially on muscle, and the consequent increased danger of imprisoned infection, must be fully realized.

3. Nothing can replace early wound excision as a means of preventing or reducing such infection.

4. The accepted good effects of early wound excision can be made still better by the addition of a local frosting of the wound walls with a sulfonamide. It is probable that the most generally effective of this group is sulfathiazole. But for surface wounds, to prevent streptococcal infection (usually secondary) sulfanilamide powder is equally effective.

5. The closed plaster method is probably superior in most cases to the older method of open splints and frequent dressings, but only if it has been preceded by a thorough wound excision done within six hours of the wounding. Yet it involves definite dangers; and also, probably, in some cases the disability of malunion.

6. To think that the closed plaster method by itself, or that an attempt to introduce a sulfonamide in powder or in paste into such wounds, or to give it by mouth, will do instead of the operation, is folly. Such measures are excusable only when wound excision is not possible under the circumstances present. Yet in such cases, they are certainly to be applied in the degree possible, either or both according to the case, inasmuch as they can be of some benefit.

If then, coming back to Old and New, we shall be found within the lapse of one generation to have destroyed, given only the opportunity of reasonably early treatment, those dreadful monsters of the old war, gas-gangrene and sepsis, which carried off so many of our finest and best, shall we not rejoice with a great joy! It is matter for a great uplifting of the spirit; and some of riper years who went through the older tragedies may feel content to sing their Nunc Dimittis, for their eyes will have seen salvation.

RÉSUMÉ

Il est certain que les nouveaux principes thérapeutiques n'abolissent pas toutes les anciennes acquisitions qui ont fait leurs preuves. Il faut être éclectiques et conserver ce qui est excellent, que le principe en soit ancien ou récent. On peut dire *à priori* que tous les projectiles de guerre sont théoriquement vecteurs d'infection et que les dangers auxquels ils exposent sont en raison directe de leur rapidité. Rien ne peut encore remplacer l'excision précoce d'une blessure pour en prévenir ou diminuer l'infection, et cette excision sera encore plus efficace si les lèvres de la blessure sont tapissées d'un sulfamidé, notamment de sulfathiazole. Pour les plaies

superficielles, cependant, la sulfanilamide pulvérisée préviendra encore mieux l'infection streptococcique secondaire. Le procédé du plâtre fermé vaut probablement mieux que la méthode des attelles ouvertes avec pansements fréquents, mais à la condition d'avoir procédé dans les 6 heures qui ont suivi la blessure à une excision parfaite de la plaie. Et encore, existe-t-il quand même certains dangers, et éventuellement, une union défectueuse des éléments traumatisés. Plâtre fermé et sulfathiazole ne sont toutefois que des mesures d'urgence et ne remplaceront pas l'opération toutes les fois que celle-ci pourra être entreprise. Quoiqu'il en soit, la gangrène gazeuse et la septicémie, ces horreurs de la Grande Guerre no. I ont maintenant disparu. JEAN SAUCIER

THE PSYCHONEUROSES IN WAR TIME*

BY A. T. MATHERS

Winnipeg

TO be asked to give the annual address in Medicine before this distinguished body is an honour of which I am both keenly aware and deeply appreciative. That this honour should fall to one who being a physician is also a psychiatrist is unusual and possibly significant. Psychiatry has for long—for much too long—been in a rather unfortunate position in its relationships with the rest of medical science. Psychiatrists, until only a few short years ago, might be said to have almost voluntarily exiled themselves within the rather forbidding walls of massive institutions which were always under more or less suspicion. Here they carried on, amid the press of a variety of administrative duties, a modicum of medical work of a very special type, thought by those outside to be narrow in scope, confused and vague in concepts, and burdened with a next to unintelligible terminology. These men ventured little into the medical world and when they did they very frequently left behind impressions in which doubts as to what they were talking about, what was fact and what hokum, were all too plentiful. Self-respecting physicians could not bring themselves to believe that in the work these men did there was much sound doctrine or anything to be worried about or sought after. The self-imposed isolation of the psychiatrists was not seriously interfered with. The other denizens of the medical world, with a disdainful sniff or perhaps a passing wave of pity, largely went by on the other side of the road.

But, commencing, I should say about twenty years ago, a gradual and progressive readjustment in values has come about. There has been a reawakened interest in psychiatry, and psychiatrists have once more come to feel that they belong in the medical family. "Their concepts have ceased to be the philosophical ruminations of the few and are becoming the practical tools of the many". Mutual respect and helpfulness have been growing and none has benefited more than the common object of our study and solicitude—the patient.

All will agree that the discussion of such a subject as the Psychoneuroses in War Time is timely. I am sure however that before modifications incident to temporal events are considered we must first establish something resembling an orderly conception of the main theme. And in attempting this I realize that for the majority of my audience this particular subject is already befuddled by reason of an irritating multiplicity of theories, views and pronouncements. To more than one, the obvious inability to relate the manifestations of psychoneurosis to demonstrable structural change or functional alteration has cast, and will cast, grave doubt upon its right to a respectable existence at all. The source of this inadequate view lies far in "the dim backward and abysm of Time".

The noble achievements of Vesalius in anatomy, Harvey in physiology, Virchow in pathology deserve all praise. But in so far as these set going a current of stark materialism that still runs strong, influencing medical education and thought unduly, they perhaps failed of being as great as they might have been. Now we must turn back to the oneness of the Greeks. We must strive to see life and its phenomena, good or ill, whole, and to maintain a reasonable balance between the physical, the chemical and the psychological. Only by so doing will the physician—and the surgeon—approach an authentic understanding of the multitude of human ills. For, after all, we as physicians must deal with distressed people, not damaged parts.

All of us recall how during the last war sheer pressure of events obliged a modification in the

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strictly materialistic viewpoint then at its very peak. Things that happened then could not be explained by previously held theories. A staggering number of casualties that occurred could only be explained and dealt with psychologically. There came a sharp resurgence, a new birth one might say, of the psychological viewpoint throughout the whole field of Medicine. But gains made were not maintained. Vagueness in concepts, confusion of theories, unfamiliar language and extravagant claims exacted the inevitable toll and a promising development, while it did not die, dwindled and lost ground. In the intervening years, honest attempts at the establishment of a sane and sober balance were made. And now war has apparently started a new wave of interest and enthusiasm.

The answer to the question "What are the Psychoneuroses?" would at present be different and radically different, depending on the one to whom it was directed.

To the "hard boiled", impatient, and incredulous, the term is practically synonymous with malingering, and carries with it a distinct implication of dishonesty; in fact, suitably garnished with expletives, it may be used as one of opprobrium.

To those of strongly materialistic viewpoint the concept is but a step away from the one just mentioned. Nurtured in the belief that any symptom must be traceable to structural or physiological alteration, they pass over as inconsequential or even non-existent, the viewpoint of man as unitary, consisting of superlative mechanism plus some as yet intangible integrating factor, in itself vulnerable and subject to assault and disturbance from such things as emotion, frustration, and latent hostility. They are not entirely to blame, since that was the creed to which they were exposed, their prophets the great anatomists, physiologists and pathologists, their law, the teachings of these masters. In this group the surgeons, or one should hasten to say some of the surgeons, occupy a rather prominent place. Surgeons, generally speaking distinctive in personality, individualistic, aggressive, direct in thought and deed, rather impatient of much consideration being given to such things as emotion, are giving increasing credence to the possibility of psychologically or socially determined ills. But the faint odour of something not quite respectable continues to be detected by many as they find themselves face to face with the patient whose complaints defy the most searching material appraisal.

The laity are just beginning to be aware of the term psychoneurosis or neurosis. With them it has not as yet a fraction of the social value that the designation "nervous breakdown" possesses. This seems to be a most useful term, almost certain to call forth from friends and acquaintances a proper and satisfying mystification and sympathy. But with these people also, the materialistic viewpoint is much to the fore. What more natural than to ascribe palpitation to a diseased heart, or digestive symptoms even of vague type to the organ commonly believed to be *the* digestive organ—the stomach? For them their symptoms constitute their disease. When they present themselves before their physician they expect to hear news of organic disorder. That a chronic anxiety may be the cause of a disturbance of heart rhythm or a lasting conflict with some aspect of life the cause of disturbed digestion never occurs to them. And, in fact, they may be incredulous or even hostile when full investigation leaves no other explanation. To stamp their cherished ills as imaginary only rouses resentment and, perhaps to some extent, rightly, since they really are not imaginary. Ascribed to the wrong causes, no doubt, but not imaginary.

The medical viewpoint as to causation has veered wildly in the past. One after another different organs and areas of the body have been incriminated. Each such explanation has been written about more or less voluminously, and just as surely there has been the usual subsidence to final silence. Experience and judgment have put a cancellation mark over each of these concepts and the likely explanation, it had to be admitted, was still unknown.

The voices of those who suggested that conflicts within the individual's instinctive-emotional life or between that individual's self and his environment, were important etiological factors, were either disregarded or, as they grew more insistent, were met with ridicule or abuse. The fact that the proponents of such views could not agree among themselves and were just as savage toward their ideological competitors as others were to them, did not help. However time, as usual, has healed many a breach and now while there is as yet no complete agreement as to etiology there is relative peace.

To set out a definition of psychoneurosis that would be proof against question and assault is

not in fact possible. Generally speaking however, this group of distresses represents failure to achieve full happiness or usefulness, not because of bodily infirmity or economic insufficiency but because of an uneasiness emanating from inward conflict. The symptoms the psychoneurotic bring are the presenting evidences of this uneasiness and very often represent in addition an attempt at deliverance from it.

For each and all of us, life consists of constant need for compromise. On one side the individual with such constitutional equipment as he has plus his self-centred, not always fully conscious aspirations and urges; and on the other the constant restraining and modifying influence of that individual's world as it is, using the term "world" as highly inclusive. Each individual's world differs from that of any other and so the means and ends of compromise and also the evidences of failure must inevitably differ. As we progress through life, various things in Nature and nurture aid, delay or injuriously modify the much-needed compromise. Such agencies are constantly changing even from day to day. The world is full of people who in the face of this difficult task sense their uneasiness—often without knowing from whence it comes—just knowing that in some way life is not right.

> "Below the surface stream, shallow and light,
> Of what we say we feel—below the stream
> As light, of what we think we feel—there flows
> With noiseless current strong, obscure and deep
> The central stream of what we feel indeed."

All too often with such vague, ill understood but plainly appreciable distress, there is an effort to identify the troubles and perhaps modify them in the form of seemingly physical complaints. And it is the failure in properly elucidating these seemingly physical complaints that leads to serious misunderstanding and inadequate treatment of the underlying psychoneurosis.

In the psychoneuroses there is no question of other than a unitary response. It is the whole individual, his psycho-physico-chemical being that responds. It is true, of course, that various conditioning agencies such as illness in relatives, newspaper articles, medical vagueness, etc., may cause a localization of complaints about a single organ or group of organs, but these are but outcroppings of the main difficulty and by them we must not be misled.

What are the really fundamental causes of such states?

All will grant that individual endowment varies tremendously. We are familiar enough with people who seem constitutionally inadequate in their physical beings. There are people of whom we may equally well say that they are inadequate in the less tangible portions of their beings, whose resistance to the stress and strains of life as they find it is defective. They cannot meet the rough and tumble of life without discomfort and a consequent need to escape in some way or in some degree from that which injures or threatens to injure them.

Some of these vulnerable personalities seem to be born this way. No doubt many more are made so after life commences. Imitation of potent examples of psychoneurotic illness constantly intermingled in the life of the growing impressionable child accounts for many. Defective or pernicious education of the child will account for others. I do not mean education in the erroneous oft used sense of mere accumulation of facts. I mean the much less formal but more potent process that goes on in the home, and school and at the hands of associates. Inequalities in instinctual development with resulting inability to properly effect life's great compromises are at the bottom of a huge number.

We know that, as in predominantly somatic disease, there are predisposing and precipitating causes of psychoneurotic ills. With the ground prepared by any of the great causes I have just mentioned, a sudden or relatively sudden stress or strain, an enfeebling bodily ailment, a personal disaster or disruption of personal life, even the suggestions of friends, of current literature, of daily events or the incautious vague words of a physician will set off a whole chain of distresses and unhappinesses all too frequently masquerading as actual bodily disease, but in reality something quite different.

The assigned title of this address: "The Psychoneuroses in War Time" implies manifestations among civilians as well as those noted among members of the armed forces. And it is meet that we should enquire as to the possible existence of a specific type of psychoneurosis incidental to war. Is it true that war and all that it does to disrupt and redirect national and personal life, entails the emergence of a type that would not be met with at other times?

All experience since a relationship between war and psychoneuroses was first noted has been in support of the contention that there is no

distinctive war type. What there is, is a difference in precipitating factors, in acuteness of onset and in incidence. Unusual conditions and factors are part of war. These in wars such as we know modify the life attitudes of soldiers and civilians alike. There is a shaking of seemingly thoroughly established concepts. There is vague but constant general tension, some deprivation, some anxious expectancy, some fatigue, and all are subject in varying degree to these devasting influences. Then comes the critical moment, not when something new and startling necessarily happens, but when personal integration begins to crack and crumble. This moment, if one can speak of it as a moment, may coincide with some sudden and startling occurrence in which case it is this sudden happening which gets the blame for what follows. In this way the now discredited designation "shell shock" came into being. The belief, when this term was coined was, first, that the actual concussion of high explosive shells produced petechial hæmorrhages in the central nervous system and that these were the cause of the striking results. When doubt was cast upon such an explanation then the effects of noxious gases, chiefly carbon monoxide, liberated at the time of shell explosions seemed a likely explanation. In the light of closer and more thoughtful appraisal and subsequent experience, both concussion and poisonous gases have been discarded as possible causes of the cases. We have been obliged to finally concede that the vast majority of these cases are psychogenic. They arise as the result of disintegration of personalities called upon to meet situations and circumstances which are too much for them. They are the outcome of an inward uneasiness with succeeding efforts at appeasement. And this inward uneasiness may well have antedated and generally did, antedate actual war experience. "No one's mental slate is at any time clean. Marked on it, be it ever so faintly", there lies like a palimpsest "the record of the past, particularly those events of the past heavily charged with emotion"—insecurities, hostilities, frustrations as well as happiness. These unremembered but potent things do much to guide and mould our attitudes to the problems of life that come after. In situations that threaten, their influence becomes more marked and the result of the ensuing conflict between conscious life and these deeply buried complexes is mirrored forth in the odd symptoms and signs of the person whom we say suffers from a psychoneurosis. In war and in peace the mechanism is the same.

In this war, to date, it has been remarked again and again that the psychoneurotic reactions which had been anticipated as likely to occur in huge numbers have not materialized. One may venture the belief that they will come. Indeed they have come whenever the tempo of war has been stepped up. I believe I am right also in saying that to date a sizeable proportion of visceral disorders has occurred, notably duodenal ulcer, traceable as in the last war to psychic tension. With a change in the conduct of war one might expect this type of psychosomatic disorder to decrease and the more purely psychic disorders to increase.

I am much averse to involvement in a hair-splitting classification of the psychoneuroses, since to me the fundamental mechanism at work is essentially the same in all. The presenting evidences do differ however and, provided we allow a certain vagueness in the ultimate definitions of entities, a classification based upon symptom pictures has some value.

If one looks over the literature of the last war one is amazed and thoroughly befuddled by the numerous classifications then put forward. Out of this disorder has come a nearer approach to order. The classification most acceptable now is one that includes all psychoneurotic types of either peace or war time.

First of all there are the Simple Fatigue states regarding which there is no mystery and for which rest and reassurance are all that are required.

Next there are the Hysterical types, varying all the way from massive dissociation states in which the patient seems to have completely lost himself as in fugues, twilight states or convulsions, to the partial dissociation states in which segments or portions of the body only are involved. Such include the hysterical paralyses and contractions, the aphonias, the amauroses and other sensory disorders. It will be noted that in all of these the attempted resolution of conflict or appeasement of inward uneasiness takes the form of social appeal. The manifestations are appreciable to others directly. Inward distress is assuaged by, as it were, an appeal, albeit not a consciously elaborated appeal, to compassion, with whatever gains emanate from that—security mostly.

The third great group is those in which Anxiety is the outstanding symptom. And here we

must recall that the term "anxiety state" from careless usage has come to mean the too much and too little that once the now discarded "shell shock" did. However, the term has a very definite technical meaning, and does mean something, whereas, as Yellowlees said, shell shock might mean anything.

These anxiety states since they include in their symptomatology many manifestations of bodily origin as well as the morbid psychic element anxiety, are particularly likely to provoke confusion in the mind of the diagnostician. Symptoms suggesting disturbance in one or several of the major systems of the body may mean to the patient and to the incautious physician that there is indeed actual disease in that system. Cardiologists, urologists, chest specialists, gastroenterologists, endocrinologists, all see these patients, and unless the clinical appraisal is general and balanced and inclusive, unless it includes a survey of the patient's emotional life, mistakes are certain to occur. The net result of these mistakes is never good; in fact it is always bad.

Hysteria, as Crichton-Miller points out, is a social type of reaction. Anxiety is essentially individual. In it the individual is faced with a dilemma in which desire and fear contend for the mastery. Coupled with this and consequent upon it is strong repression. The final picture is anxiety with all its visceral and vasomotor accompaniments, all in turn dependent upon unbalanced autonomic function. Macbeth is depicted by Shakespeare as displaying some of the symptoms of an anxiety state when he says:

> "My thought whose murder yet is but fantastical
> Shakes so my single state of man that function
> Is smothered in surmise."

The state may be a generalized one with rapid pulse, tremor, wet hands or the manifestations, being localized as has been noted, may constitute a picture of what has come to be called latterly psychosomatic disorder. And among these we recognize such semi-entities as Effort Syndrome, Emotional Hypertension, Stress Dyspepsia, Duodenal Ulcer, Emotional Diarrhœa, etc.

Of these duodenal ulcer is presently rousing much interest and speculation. One has heard that a sizeable proportion of those already invalided home from the present war have duodenal ulcer and this in the face of better selection of men, and better dietary than held in the last war.

In the very extensive bibliography on neuropsychiatry and the war prepared in 1918 by the American National Committee for Mental Hygiene, I found references to dyspepsia but none to ulcer. But the Germans, even in the last war, noted an increase of ulcer cases above peace-time levels.

None of these sub-varieties of anxiety states arises as the result of a sudden bolt from the blue sort of mechanism. Practically all those who develop them are recognizably of a certain personality type.

> "It has been pointed out that the most obvious common factor in all of them is the excessive fear of insecurity or uncertainty of any kind. In one and the larger group are the active, restless, nervy, overconscientious individuals with a permanent tendency to overwork; in other words they strive to meet their internal difficulties by activity. If circumstances bar them from this much sought after relieving activity the result is anxiety, with either general manifestations or local disturbances of the psycho-somatic variety. In the smaller group are restless, rather juvenile people, prone to worry in particular about their bodies and about illness. These generally use their illness as an excuse for anxiety instead of, as it should be considered, the other way about. Careful investigation with full alertness for the detection of the fundamental personality organization places things in their proper relationship: the precipitating situation falls back into a secondary and ancillary position and the blind spot for the antecedent emotional state is removed."

Something will have to be said about the well nigh disreputable term neurasthenia. Words like people are judged by the company they keep. And surely if any word deserves a bad reputation it is this one. Starting out as respectable and really standing for something, it has unfortunately come to be little more than sound, signifying nothing distinctive. Perhaps, one should not say just that either, for it certainly has been a refuge for the physician who was in despair for a diagnosis, and the talkative patient who felt his social position enhanced by a self diagnosis in which this mellifluous and seemingly respectable and weighty word figured.

But we must admit that there are cases in which without discoverable organic cause chronic fatigue and mental apathy are the outstanding feature. Some are no doubt cases of cryptogenic somatic disease, many are *formes frustes* of actual endogenous depression. It seems unlikely that in the remainder, subconscious conflicts play any considerable part. The apparently determining causes are more often conscious and include unusual stresses and strains for the most part. These cases present features strikingly subjective. The patients look better and are capable of more than they allege. The in-

capability of which they so volubly complain is not borne out by impartial survey of their life activities. "There is a conspicuous absence of the objective signs of anxiety. The absence of confusion of thought marks them off from exhaustion psychoses with which they might, without care, be confused, while the absence of retarded thought and speech, of ideas of quiet and self depreciation and of suicidal intentions serves to distinguish them from the incipient endogenous depressions." While a sudden stress or strain may precipitate overt evidences, a search of the antecedent history generally reveals previous tendencies to exhaustion and preoccupation with bodily sensations and vague ills.

The term psychasthenia once exceedingly vague in meaning, largely through the influence of Janet, and by common consent, has been attached to the group of cases characterized by obsessions and irrational fears. These are the people whose lives are shot through with an immense dependence on ritual often of incomprehensible and ridiculous type, or whose lives are made miserable to themselves and those about them by fears, or doubts concerning common things round about, knives, germs, closed doors, etc. One is convinced that in them there is a constitutional deficiency that permits such phenomena to develop and continue. They appear to lack the inhibiting power that saves the rest of us from being hag-ridden by the odd ideas and fears that continually float in our minds and which but for our power of disregarding them would stay with and disturb us.

All that I have said is equally true for the psychoneuroses of those on Service and those in civilian life. There is no distinctive war type. What the soldier, sailor or airman may display as the result of his special war time experience he might quite as well develop under adequate stress in civil life. The civilian himself exposed to the harassments of war time as well as the hazards of peace may develop them. Were it not so, much medical practice, both special and general, would simply disappear. We here, hundreds of miles from any present threat, are aware of underlying uneasinesses and tensions. The "distant roar and rumble of chaos and confusion" echoes disagreeably around us. How much more disturbing is it for those who stand close to it or in its midst. Brave and patient and persevering as they are, life must be different for them; the wearing down must be going on insidiously. One might suspect that with them it may well be as with the "nervous" individual who astounds his friends by standing up to a crisis magnificently, only to break when the actual crisis is past.

We have become accustomed to the term "war of nerves". We know what is meant, even though we may object to it as inaccurate. War has always carried with it an inevitable psychological tension but never before has this been so deliberately capitalized as a weapon. It is, as Bion says, a psycho-therapeutic procedure in reverse. The enemy for his own advantage utilizes for the first time knowledge of the springs of human attitudes and conduct. By what appears to be diabolical ingenuity, fears and wishful thinking are stimulated. The civilian lacks the psychological preparedness possessed by the trained soldier. The maintenance of morale calls for careful thought and the application of theories that appear to be based solidly enough. There no doubt are many avenues of appeal, songs, slogans, cartoons, etc., are some of them, but their effect is, one would be inclined to believe, somewhat evanescent. The grouping of people into organizations with action directed toward definite objectives does much to balance social sense and individual urges and isolation. Menninger states that *work, play* and *knowledge* are the best guarantors of civilian morale.

Those who recall medical work during the last war or who may have had occasion to review the medical writings of that period will remember the remarkable number of therapeutic procedures that were tried. Each one had its enthusiastic protagonists. In the extensive bibliography previously mentioned the references were grouped as follows: psychoanalysis, 9; pharmacological, 11; anæsthesia, 14; isolation, 18; rest, 22; occupation and recreation, 26; electricity, 27; re-education, 34; hynotism, 36; psychotherapy, chiefly suggestion, 47.

Were a similar consensus of the present day available one ventures to think that there would continue to be found some support for each and most of these types of treatment. Anæsthesia, however, would probably be found to have given place to prolonged narcosis. Electricity would likely have dropped back to a lesser position, as might also have hypnotism. Otherwise I believe the list would be much as before. Psychoanalysis cannot be available for many civilian cases, let alone those occurring under the strenuous conditions of war.

Pharmacological treatment, limited largely to the judicious use of sedatives and hypnotics in the acute states, continues to have a place. The indiscriminate and thoughtless use of such substances can of course result in nothing but harm. The acute case occurring more frequently under the stress of war than under peace time conditions has, as Wright points out, become to a greater or less degree the frightened child. For him the world is a terrifying place and his need is for all that the mother has given him in the past, security, food, warmth and rest. These are what must be supplied, but at all times the patient must understand that the ultimate objective is restitution to his former state of well being. Nothing must be done that will in any way lead to stabilization of the undesirable regressive neurotic reaction.

The chief dependence must be upon the group of procedures and techniques coming under the term psychotherapy. Many, and I should say a great many, know the word but what it means is a different matter. To them the word stands for a rather vague and ill defined concept including anything from a sort of flank attack on the patient's beliefs and complaints by sweet and reasonable reassurance, to the direct frontal attack of vigorous affirmation that the patient really has nothing wrong with him and should be ashamed to believe, let alone say, that he has. There are occasions when these special and rather simple techniques work but they frequently do not. In reality psychotherapy is a much more complicated procedure that must be thoughtfully utilized.

It, the one type of treatment that goes hand in hand with the investigation of the case, starts with the first interview and its success or failure may be determined by what happens then. The patient coming to the doctor brings complaints honestly put forward and nine times out of ten suggesting organic disorder. He being a materialist like most of us, as I have said, expects news of organic disease. There are at least two reasons why. Organic disease some way or other carries with it a degree of respectability denied the so-called nervous disorders. The latter do not provide suitable topics for conversation and the patient is denied the satisfaction that so many get from talking over their ills. Then too, steeped in the belief that what appears to be physical distress must emanate from physical causes, the patient quite honestly passes over or fails to mention relevant causes not to be considered physical in the ordinary sense, or, aware of their importance, he may perversely conceal them.

The thorough-going psychoneurotic will willingly talk volubly about his stomach or bowels or heart, but he will not mention the part emotional difficulties play. He may even be annoyed when that subject is gently introduced.

That one must rigorously individualize scarcely requires emphasis. We may be members one of another in a general sense but in no two people will the forces working disruption be the same. Inevitably they will differ and many of the differences will be important.

Another necessity is an objective attitude, with care taken to exclude subjective conclusions and conclusions leaped at blindly. The physician investigating psychoneurotic illness must be uncritical. To adopt "a hypercritical, moralistic or punitive attitude" when the innermost parts of patients' lives are being dealt with soon closes the door on important data. We are not sitting in judgment on the way people live their lives, or, if judgment is necessary, it must be tinctured with tolerance and human understanding.

The setting of the examination is important. One must talk to the patient alone in circumstances that put him at his ease. One must above all things be a most patient listener. Many patients are wearisomely voluble. They may be discursive and vague to a degree requiring occasionally gentle redirection, but they are intent on having their say and it might as well be conceded them. The physician must learn all he can about the patient's thoughts, feelings and reactions. The patient does himself good as he expounds his troubles to a sympathetic listener and lastly, by listening quietly and sincerely the physician lays the ground work of that confidence upon which he must so heavily depend. One must be "as a nerve o'er which do creep the else unfelt oppressions of the world".

Having listened to the patient's account and having amplified it by such judicious questioning re family and past history, the genesis and development of the present difficulty as is deemed needful, a complete physical appraisal must not be omitted. It is axiomatic that no psychoneurosis may be assumed. Nothing helps the patient so much as to see that his com-

plaints are being taken seriously and that nothing is being taken for granted. Then, too, there are inevitable surprises. Something that we had already almost concluded must be a pure psychoneurosis turns out to have a nucleus of organic disease, or is, after all, nothing but organic disease, the patient's account of which has been unusually confusing or misleading.

Following the physical examination there may be a further period of interrogation to enable revision or enlargement of certain aspects of the case, or a search made for hitherto undisclosed foci of irritation, frustration, etc. Here is the point where one really tries to survey that which, in the patient's life, lies back of the onset of symptoms, and the search will in some cases carry back even into childhood. In the acute anxieties the trigger mechanism may lie close at hand, historically speaking. In other types only the most patient and thorough going search will reveal the predisposing and preciciptating factors.

Then comes a period of explanation tactfully put, but plainly comprehensible to the patient based upon knowledge and sympathetic understanding. We can never afford to forget that to the patient his symptoms are real. In fact to him they constitute his disease. To ruthlessly damage his self-respect and demolish his judgments, erroneous and all as they may be, deprives you of assistance only to be obtained from the patient himself.

Weir Mitchell thought strict isolation essential, but we all recognize that to shut some patients up with no company other than their gnawing conflicts would be a poor thing to do. Yet there are times when the exclusion of well meaning but talkative relatives or friends is essential. The patient who already half suspects that his malady is serious is not helped by the would-be sympathetic talker who having listened to the patient's willing discussion of his symptoms, makes some such remark as "Your case reminds me of poor Jones, and of course you know what happened to him."

In attempting to help the psychoneurotic patient one is really embarking upon an educational process. The initial fault in the patient's life may be close at hand, historically speaking, but it is much more likely to necessitate a laborious, difficult and at times discouraging effort to dislodge and overcome it. One may with a speed suggesting a miracle dispose of one manifestation, but lying behind this is a personality, full of trouble, deficient and in some respects crippled. That is the real problem. Firmly set beliefs and even rooted prejudices must be overcome. Relapses occur; in fact we may expect them and be prepared for them. Recovery is rarely a smooth uninterrupted rise. It is more often a series of advances and regressions, the latter rarely of the duration of the former and, when things go well, progressively more and more brief. Knowing all this, it is scarcely necessary to say that patience is and must be the physician's outstanding virtue.

Some of these people come to us in really robust physical health. Many, however, because of their disturbing preoccupation with their viscera, their tampering with diet, their misdirected self-efforts to treat symptoms, their broken or generally inadequate rest, need wise guidance and sensible regulation of their lives. Functional faults must be overcome by natural means wherever possible. Deleterious dieting and self-medication must be terminated and often all the physician's powers of reassurance and encouragement and at times real firmness will be needed in the task. There is a place for the careful use of adjuvants such as hydrotherapy, heliotherapy and even at times medication if we are satisfied of the need and if we think of such assistance as ancillary and temporary only.

With all these things considered, the one thing that will work hardest for success or failure is the physician's personality and his knowledge of what human beings are.

The first interview does much to decide the issue. It will be lost if the patient—watchful of us as we are of him—detects evidences of preconceived or hastily drawn conclusions, intolerance, or haste and incredulity. Most of these patients have already made the rounds of a number of physicians. They recognize the techniques that, having already been tried on them, have resulted in no good.

Some do not really want to part with their neurosis. It has come to be a shield against other things that seem less desirable and less comfortable. They may have gone long past any conscious recognition of their own motives. They may never have glimpsed them. Those who are utilizing their neurosis as a defence, a compensation, as a means of retreat to a semi-infantile dependent state, or are living out an

expiation of a potent, even if dimly recognized sense of guilt, are the trying ones. They are being asked to give up something of real value and something of greater value must be supplied. And here is where the rôle of physician combines and must combine in itself something more than mere technical excellence. It demands a deep understanding of life in both depth and breadth, its deficiencies and deformities as well as its great possibilities.

Prognosis depends, one might venture to say, upon at least four things: (1) the predisposition of the patient; (2) the accuracy of diagnosis; (3) the skill and thoroughness of treatment; (4) the time of treatment.

We all grant, even if we pretend to no particular prescience in the matter, that people vary in the degree in which they possess something variously designated as mental resistance, capacity for adjustment, integration or plain intestinal fortitude. Some having slipped into a psychoneurosis will with assistance speedily scramble out of it and this applies to civilians and soldiers alike. Others will not respond so well even though treatment is faultless, for the simple reason that their own contribution to a restored state is deficient. These are the people whom we should if possible keep out of the Services. Their prior detection is difficult but that it can be done in some degree is shown by the experience of the last war, in which the United States by a sifting and winnowing process kept their psychiatric casualties down to 9.5 per 1,000 while such casualties numbered 24 per 1,000 in the Canadian Army and 34 per 1,000 in the British Army. Similar care in selection is reported by Mira as being responsible for the relatively small number of psychiatric casualties in the Spanish Republican Army.

The need for accuracy of diagnosis scarcely need be stressed. The real and only danger is mistaking an organic state for a neurosis or vice versa. The result in either case is likely to be tragic; an unsuspected organic lesion especially cardiac may be responsible for death. A diagnosed but non-existent organic state may deform and cripple a life.

The timing of treatment especially in the Service and Compensation case is of extreme importance. Promptness and speed are necessary. And protection of the patient from the well meaning but so often misplaced solicitude of friends, relations and even some physicians is equally necessary.

I have said that what is most desired is the avoidance of the kind of state that pyramids upon itself. Unless treatment is speedy, efficient and constantly directed in both patient's and physician's minds by the ultimate aim of recovery and restitution, chronic invalidism results. This is particularly likely to occur where there is a question of compensation. It is an amazing fact that there are many people in the world who will sacrifice anything for monetary gain and this even if the supposed gain is grossly out of proportion to what is sacrificed. Psychoneuroses of either civilian or military life should not be looked upon as continuative and inexorably progressive maladies. They should be considered as more or less crippling interludes which with due recognition and proper treatment before the stage of stabilization can and should be cured. It should be impossible for any one so afflicted to look forward to thereby and therewith establishing for himself a life-long annuity. Compensation, if it enters the picture at all, should have a limit in both amount and time. With neither, cupidity on someone's part, not always the patient's, is bound to intrude and with nothing but expensive and morally damaging results.

The whole subject is immense, as broad as life itself. Its intricacies and complexities are a little more evident, a little better understood than they were twenty years ago. But of these important and fateful mechanisms, the source of an immense reservoir of human unhappiness and misery, there remains much to be disclosed. In them, there "gleams an untravelled world, whose margin fades forever and forever as we move". New contributory territories open before us and beckon us on and on. It is hard to be patient and persevering but this we must be.

"Our works are not such as we desire but such as they can be.
Minds more enlightened than ours will add what has escaped us."

RÉSUMÉ

Pour bien comprendre l'homme, il faut voir en lui un tout composé d'éléments physiques, chiniques et psychologiques. En général, la psychonévrose représente la difficulté ou l'impossibilité d'atteindre le bonheur à cause de malaïses émanant de conflits intérieurs. L'homme tend instinctivement au compromis. Si celui-ci n'est pas obtenu, il en résulte le ou les symptômes névropathiques que le malade demande au médecin d'élucider, puis de guérir. Les causes de cette rupture d'équilibre sont nombreuses. Certains individus sont nés vulnérables; d'autres ont eu une éducation viciée dès l'enfance; d'autre sont influencés par la fatigue, par

l'imitation, etc. Les psychonévroses de guerre ne diffèrent pas de celles de la paix; seuls les facteurs qui les déclenchent sont différents. Le "shell-shock" est bien d'origine psychique, rattachable aux charges émotives du passé. La présente guerre n'a pas fourni le grand nombre de névropathes auquel on s'attendait. Les classifications les plus simples sont les plus véridiques. Notons les états de simple fatigue, les états hystériques, les états anxieux. Il est fréquent de rencontrer l'ulcère duodénal chez les névropathes. Le mot *neurasthénie* est très vague et ne signifie rien de précis. La psychasthénie désigne les états obsessionnels et les craintes irraisonnées. Les sédatifs employés judicieusement gardent toujours leur importance thérapeutique. La psychothérapie, art difficile, commence avec le premier entretien et aura des variantes infinies selon les sujets, qui doivent être écoutés avec patience et sympathie. Après un examen physique très complet commence le redressement psychologique qui sera prudent et bien gradué. Les psychonévroses sont curables, et elles le seront encore plus facilement quand tous les facteurs en cause seront mieux connus. JEAN SAUCIER

LESSONS FROM THE BLITZ

BY J. R. LACROIX

Montreal

THE best way to test a hospital system designed to look after air raid casualties is to have an air raid. No matter how carefully the organization has been planned the flood of admissions following a heavy attack will bring out unforeseen difficulties. A certain large Midlands city was the last of the great cities of England to be severely raided so there had been ample time to make plans, as well as to benefit by the experience of other towns which were bombed earlier. Not until December, 1940, did we experience more than minor raids, the casualties of which were easily enough handled by the routine services. But then the Germans delivered on us one of their greatest attacks.

Although most of the destruction was in the unoccupied business section the casualties numbered 546 dead and about the same number of injured requiring hospital care. In spite of every preparation the strain of handling such numbers, in three hospitals, demonstrated weaknesses in our organization serious enough to hamper its efficiency. These were corrected, and subsequent raids proved that we had a system which worked. The suggestions which follow are the result of this experience. Only main points of organization are dealt with, and details have been avoided as far as possible, for these must vary with each hospital. Suggestions concerning actual treatment have been omitted altogether. The various details of organization described are those finally adopted through sheer necessity to organize a system which would allow the injured to be cared for in the shortest possible time without confusion.

Confusion is the great menace and time waster after an air raid. If it can be avoided by proper preparation, details of management and of minor personnel can be arranged almost on the spur of the moment. There were many bizarre results of confusion in our first big raid. Everyone worked hard but there was a lack of coordination so no one was very sure of what anyone else was doing. Too many people were giving orders while no person with complete authority had control over all. There was a tendency for groups of the injured to be forgotten in such unlikely places as the linen room, where some had been put for lack of other space, or for such injuries as fractured spines to be evacuated to outlying hospitals before they received treatment, because they looked fairly fit and had no record card to say what was wrong with them. Such errors will not occur if the main details of organization are properly planned.

To begin with there were not enough beds. At the outbreak of war the hospital had been emptied, but when no air raids occurred for weeks, then for months, the pressure of normal practice caused more and more wards to be opened until by the time the blow fell, the hospital was once more running at full capacity with perhaps thirty beds empty. After these were filled at an early stage, the wounded had of necessity to go on the floor, on stretchers, and on anything else which could be improvised. The government had provided large numbers of extra mattresses for such a situation. It does no good at this point to ask why more beds had not been kept empty. There must be a definite policy agreed upon beforehand by the hospital staff, either to keep some wards empty or to take the chance, as well as the responsibility, of not having accommodation for air raid casualties. Even in much bombed English cities, it is obviously better to treat a series of ordinary patients in a hospital bed, rather than deny them

hospital care in order to keep the bed always empty so that it will be ready for a solitary air raid casualty when a raid does occur.

There is a danger of the nearest hospitals being filled beyond their capacity while those further from the main destruction could take a larger share. To prevent this, a central controlling officer has been appointed. He keeps in touch with all the hospitals and is able to direct the centralized ambulance service in a manner which will keep the casualties spread out as much as possible. He should not need to rely on the telephone for his information because this service is often the first to fail during a raid.

Our first heavy raid was typical in that it lasted for ten hours without the slightest intermission. During this period everyone takes what cover he can find and stirs not abroad. Only a small number of the wounded reach hospital until the raid nears an end. This circumstance cannot be overcome and it unfortunately deprives those injured early in the raid of their best chance of a good result from surgical care. Any attacks on cities on the American side of the Atlantic would necessarily be comparatively brief or intermittent, though possibly of great intensity, so this least controllable factor would not be of such importance.

When the wounded arrived at the hospital they were examined by one of the casualty officers. Our three regular officers were enough for this work. This first examination is very important because it should be the only systematically thorough inspection the patient gets. Afterwards he should be disturbed as little as possible. The examination requires only a few minutes, and it is reassuring to have absolutely reliable men doing this work. They should be assisted by at least six nurses, working in pairs, who are skilled at undressing patients with the least possible disturbance.

The record of the patient begins here and all subsequent notes should be written on the same single form. The form should be of cardboard about six by eight inches. Ordinary history sheets get lost and torn, and cannot be written on without a hard surface upon which to rest them. The card should be tied to the patient. The record, though brief, is of extreme importance. Within the next few hours the patient is going to be seen by several different people, each of whom must be able to read exactly what has been learned, and done, up until that time, and each must be careful to add his share to this information.

The casualty officer records name and address and *time of injury*. Usually he administers morphia and records the time of administration. Then he lists the injuries he *knows* exist, and finally he lists the injuries he suspects but cannot see, and suggests what x-rays may be advisable.

The patient now moves on to the key man of the whole organization, the man without whom the most perfect organization becomes an unutterable confusion in the face of trial. He has usually been given the name of "sorter", and that is exactly his main function. He sorts the patients into main groups; those who may be taken early to the operating theatre; those who must be taken early; those for whom the primary treatment must be resuscitation and shock therapy regardless of what may be necessary afterwards; those who can wait indefinitely for treatment; and, finally, those who are fatally wounded. The sorter sees only patients who are being admitted to hospital. He writes, under the casualty officer's notes, what the *general management* of the patient is to be. The job suggests itself as one suitable for a junior surgeon but experience shows that here is the duty for the most senior man. It must be performed by the chief of staff, by the only man who has no superior to answer to and who is most immune to criticism. This was so impressed on us during our first bad raid that since that night the chief of surgery sleeps in the hospital or deputizes one of the *senior* staff to sleep there to carry on, in event of a raid, until he arrives to take over.

The necessity of having the man with greatest authority doing this work requires emphasis. It is true that the limelight is in the operating theatres, but not all the senior surgeons should be. On the whole traumatic surgery is not difficult, however spectacular, and can well be left to the junior surgeons. The men of greatest authority should assume the duties which require the greatest responsibility, and of this the sorter takes the greatest share. He becomes to some extent an arbiter of life and death. In a heavy raid some of the injured must be left a long time. Someone must be last. Working as hard as we could, after our first severe raid, it was twenty-four hours from the beginning of the attack before the last of the injured was treated.

Leaving most open wounds so long means that the patient's best chance of rapid, primary healing is lost. It spells the difference between asepsis and sepsis; the difference between ten days and ten weeks of hospital care. Moreover, to leave some wounds, such as penetrating wounds of the abdomen, may mean the difference between life and death. To leave injured people as long untreated as we were forced to do in some cases would, in ordinary practice, constitute malpractice which could be successfully prosecuted. Who is to decide which are to wait? If the rich and poor, the high and the low, are brought in side by side, it is still necessary to provide treatment first for those who most urgently require it. But no casualty officer can so decide, and no junior surgeon should be asked to put his livelihood in jeopardy by having the community say he left the Bishop (or the Mayor, or rich Mrs. so-and-so) on the floor to die, or to wait many hours without treatment. Such a decision can properly be made only by the chief of staff who has sufficient authority to be beyond reproach.

If undue importance seems to have been given to this point it is because it was for lack of a sorter that our own organization, otherwise adequate, broke down, and we were able to observe the completeness of the resulting confusion.

The sorter has another function which, in a heavy raid, should be performed by an assistant who should be a senior surgeon. This is to keep watch on those being resuscitated and to decide when that golden moment has arrived when they have reached the peak of their recovery and will henceforth only get worse in spite of anything *unless their injuries are treated.* He must see that such patients take the place their condition warrants in the list of those waiting to go to the operating theatre.

A large proportion of the injured will have been marked down by the sorter, for resuscitation. The group organized to look after this work is usually recruited from the medical rather than from the surgical services. They work in close association with the assistant sorter. Only about 10 per cent of cases admitted will require transfusions. The percentage was surprisingly low in experience, but very many more were in need of other forms of shock therapy before they could be considered fit for operation.

Two physicians, with two or three housemen to give transfusions, can easily manage the resuscitation of large numbers of casualties if there are plenty of nurses. It is important to have a greater proportion of nurses here than elsewhere. A record of the degree of shock and the patient's progress under treatment must be made.

A blood bank, even if only of plasma, is almost an essential in circumstances dealing with large numbers of injured. It would be unthinkable to have to wait for donors, and a whole extra unit would need to be on hand to group and draw the blood. Every hospital in Britain has access to a blood bank and this is freely used in ordinary practice. It is now as convenient, and takes no more time, to give an infusion of whole blood or plasma, as to give one of glucose saline, and it is a service which, once started, could never be dispensed with in peace or war.

A large proportion of casualties will require x-rays. This will be indicated on their cards by the casualty officer who first examines them. Arrangements for taking the x-rays must be left to the x-ray department. If patients are sent directly from the casualty room to x-ray, the latter department will soon become a shambles. The wounded come in too fast. They must all go to the wards first, where the director of the x-ray department can see them and arrange the order in which they are to be taken. This system may mean more moving about for some patients, but for many a portable machine is sufficient. Here again, having one man in control prevents confusion, and it must be someone who is entirely familiar with the workings of the x-ray service and who understands its capacity. If taken in the proper order it is not difficult to have x-rays available to accompany each patient to the operating theatre when his turn arrives.

Surgical teams may be organized in advance, a surgeon, an assistant, an anæsthetist, one nurse scrubbed and at least one other nurse, preferably two, one of whom should be a senior who knows where and how to get equipment in a hurry. Each team can look after twelve cases of open wounds per air raid. Some centres in Britain report a larger number than this, but we found that one case an hour per surgeon was our speed and it is on this basis that the hospital is now organized. There are five operating theatres which are so situated that one can count on being able to use them after a raid. No dependence is placed on other theatres on top floors. With five dependable theatres the capacity of the hospital for receiving casualties

has been set at sixty patients with open wounds. Eighty beds are kept permanently empty and ready. Beyond that number effort will be made to send casualties elsewhere. It is true a surgeon can heroically stand up to an operating table for twenty-four hours or more, but it is doing no favour to the patient with an open wound to keep him waiting that long for the attention of even the most famous surgeon. Wounds must be treated within twelve hours from the time they are inflicted to be at all safe, and much earlier than that if possible. In actual experience we found it impractical to plan for more than one case an hour per available theatre up to a limit of twelve cases.

The supply of patients going to the theatres must be kept an even, steady flow. This again is the responsibility of the sorter and his assistant, and if neglected it is liable to be the greatest single source of delay in the whole system. The surgeon should not need to leave the theatre and look for what case he will do next but only send out word, near the end of a case, that he is ready for another, and the assistant sorter should be on the wards to receive the message and say which of the injured is to be next. The anæsthetic should start outside while the surgeon is finishing the previous case. Only by using every available minute can the last patients be dealt with soon enough to give them a good chance against sepsis.

The surgeon must not neglect to write, at the end of each operation, a note on the extent of injury when fully seen and what treatment he did. He should suggest post-operative management and what further x-rays are required. If some of the injured are to be taken to outlying hospitals the evacuating officer will depend almost entirely on the surgeon's note whether or not to evacuate any particular patient.

Every case should be seen by the physicians as early as possible and repeatedly for several days, so that signs of the interesting blast syndrome can be detected and studied. Some ill but apparently uninjured patients have proved to be cases of domestic gas poisoning. All who do not require surgical care should be transferred to the medical service at once to relieve the strain on the surgical side. This seems fairly obvious advice but it is usually about two days before anyone gets around to doing it.

Special patients such as those with facio-maxillary, intraorbital or intracranial wounds should be sent to their special hospitals or departments by the original sorter. Most injuries in an air raid are within the range of the general surgeon. The chief exceptions in point of number are the head injuries. The incidence of head injuries for some reason, perhaps as a result of curiosity, is remarkably high. The dead in air raids mostly die where the bombs fall. If the wounded live long enough to reach hospital — sometimes several hours — their injuries, however serious, are usually not fatal with modern treatment. In our experience, of those who died in hospital, more than half were head injuries.

It was found inexpedient to keep head injuries under the general surgeons, who, no matter how good their qualifications to do intracranial surgery, lacked the trained team of assistants and nurses to deal with this type of work. On the other hand it overwhelms the brain surgeon to ask him to do a dozen intracranial operations in less than three days. This was a problem to which we did not find a satisfactory solution.

By the end of the day following a raid enough convalescent patients and those in for investigation can be sent home to provide beds for casualties who have been on the floor or otherwise accommodated. It is surprising how many patients *can* be cleared out of a hospital in a few hours if the need arises.

The hospital staff, and the public as well, should foresee one of the difficulties which arises after a raid. An air raid is a great leveller in more ways than one. The hospital service is strained to the uttermost. The first served are the worst injured, who are judged worthy of prior treatment by those most capable of deciding. If a surgeon has been appointed to a place in the organization which is to deal with air raid casualties, he cannot be elsewhere. The senior surgeons (those most likely to be affected) cannot range about the city after a raid in answer to the almost undeniable calls of their own private patients. The public, in turn, cannot expect to be able to insist on "their own doctor". Nor should any surgeon expect to bring his own patient to the hospital, and to the operating theatre, and have the patient avoid going through the organized service. A dozen such cases not taking their proper turn could upset the smooth working of the most painstakingly organized effort.

All patients should be admitted as air raid casualties, nominally under the chief of staff, not

to avoid the rush for paying patients, but to provide autonomy to the various groups who may in turn deal with the patient. The resuscitation team must be able to administer their transfusion or other treatment without obtaining the explicit permission of the surgeon under whom the patient may have been admitted, otherwise they cannot get on with their work; and their work is such that it cannot suffer delay and still be useful. The assistant sorter must be able to send cases into the theatre as he thinks fit. The surgeon to whom the patient comes must be able to go ahead on his own judgment. If each must refer back to one man for instructions it is the patient who will suffer.

Nothing has been said about the administration or nursing staffs. It is not they who are found wanting in the emergency of air raids. Administration deals as an everyday function with organizing and planning; and the ordinary discipline of the nursing staff has allowed them to rise splendidly to the occasion in Britain. Only the medical staff needs training in teamwork, and when some day, within a few hours, a hundred seriously injured people are left at the door of the hospital, teamwork becomes so necessary that all other considerations vanish.

These, then, are the main problems which were created by a great air raid, and these are the solutions which in later raids were found to be best. It is a system which works in practice. The aim of every endeavour is to have all open wounds treated within twelve hours from the end of a raid. The organization which does not achieve this is a failure from the surgical point of view. Everyone must have a clear idea of his duties in the event, and, most important of all, the senior staff must perform the tasks which only they have the authority to assume.

THE MEDICAL SERVICES AND THE WAR*

BY BRIGADIER R. M. GORSSLINE, D.S.O., M.B., D.P.H., R.C.A.M.C.

Director General Army Medical Services, Ottawa

ON the occasion of your last annual convention at Winnipeg, I attempted to briefly relate the progress of the Medical Services since the advent of war. At this time, I would like to review the situation and mention some of the more important changes and pressing problems.

In peacetime the Army Medical Corps had only 10 small military hospitals, with a total capacity of 372 beds. This number gradually increased to a total of 74 hospitals by June of 1941, and to 96 at this date, the latter number providing accommodation for approximately 8,500 patients. This increase of almost 2,500 beds and 20 hospitals over a similar time last year has not only been due to a general increase in the number of troops but partially because of concentrations of troops situated at considerable distances from treatment centres, necessitating new hospital construction at suitable sites. These hospitals range in capacity from 15 to 600 beds and are known as Home War Hospitals to differentiate them from such medical units as General Hospitals of 600 and 1,200 beds that have been especially mobilized to proceed overseas. Home War Hospitals are situated throughout Canada and Newfoundland, at Training Centres and internment camps for prisoners of war. The need for this number is readily understood if one but stops to consider that hospital provision must always be maintained for approximately 4-5% of troops.

During the past year, an inter-departmental committee, including the heads of the Medical Services of the Navy, Army, Air Force and the Director of Medical Services of the Department of Pensions and National Health, has been formed to decide upon suitable hospital requirements or enlargement of existing hospitals so that no duplication will result.

It might be of interest to briefly refer to some statistics which show the amount of work carried out in our Home War Hospitals. The following figures include members of the Active Force, "R" Recruits, Reserve, other country nationals and prisoners of war in Canada, but not Naval or Air Force personnel.

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* Read at the Seventy-third Annual Meeting of the Canadian Medical Association, Jasper Park, Alta., June 17, 1942.

TABLE I.

	Admissions	*Percentage of admissions*
Military Hospitals	89,802	82.0
Department of Pensions and National Health Hospitals	9,616	8.8
Civil Hospitals	10,123	9.2
	109,541	100.00

This shows an increase of 33,923 hospital admissions over the previous year. In addition to the increased amount of work in Home War Hospitals, the Army Medical Corps despatched 16 medical units overseas, while mobilizing another 20 medical units in Canada. These include casualty clearing stations, field ambulances, hygiene sections and general hospitals. You will readily agree that this is a creditable record, but of course one that can only be maintained as more physicians volunteer their services.

I have prepared a table to show in brief the actual increase in strength of officer personnel in the Defence Forces Medical Services.

TABLE II.

	June, 1941				*June, 1942*				
	Army	*Air*	*Navy*	*Total*	*Army*	*Air*	*Navy*	*Total*	*Increase*
Medical officers	1,024	319	94	1,437	1,385	484	189	2,058	621
Quartermasters including pharmacists	76	..	..	76	105	..	..	105	29
Nursing sisters	653	75	..	728	961	155	48	1,164	436
Physiotherapy aides	11	..	..	11	27	..	..	27	16
Dietitians	4	..	..	4	11	..	..	11	7
Home sisters	5	..	..	5	12	..	..	12	7

In the month of May, 46 medical officers were taken on in the Army and in June, up to the 15th, 30, which is a marked improvement.

From September 1, 1939 to June 15, 1942, 1,800 physicians and 1,175 nurses were appointed to the Army Medical Services: 502 officers were appointed in the last fiscal year, as compared with 671 the previous year. Up to April 1, 1942, 281 officers and 88 nursing sisters were retired for various reasons, such as medically unfit, transfer to other medical services, and deaths. Of these, 174 medical officers transferred to Air Medicals on establishment of that Service.

In accordance with the agreement between the Union of South Africa and the Government of the Dominion of Canada, 300 nurses were appointed to the South African Military Nursing Service and proceeded for duty. Forty-three young Canadian doctors also volunteered for service with the Royal Army Medical Corps.

A few interesting facts might be obtained from an analysis of the number of patients treated in Military Hospitals. As I stated before, 109,541 patients were admitted during 1941. Of this number, 89,191 were Active Force personnel and 14,435 "R" recruits called out under the National Resources Mobilization Act. It is of note that 206.8 per thousand more "R" recruits were admitted to hospitals than Active Force personnel. This is due to two factors: (*a*) a higher percentage of A.F. troops is constantly fit; (*b*) "R" recruits are of a younger age group, have a lower resistance to infection and are not so accustomed to Army regimen. On the other hand, the average number of days in hospital for A.F. personnel is 14.6 days as compared with 8.8 days for "R" recruits. This lower average sick time and a shorter number of days in hospital by "R" recruits is to be expected, as the conditions necessitating hospitalization of active force personnel are likely to be of a more serious nature. In addition, the number of accidents with longer temporary disability increases with the number of personnel.

Respiratory disease still continues to be the highest single cause of hospital admissions. Injuries, including fractures, again show an increase over the previous year and rank second as a cause of admission. Venereal disease presents 7.1% of admissions and, while accounting for the highest number of days lost, shows a satisfactory decrease of 10% during the past year. The death rate in the Canadian Army in Canada is remarkably low, namely, 2.2% per thousand average strength. Deaths from accidents account for 43.3% of the total.

As we are all more or less interested in the medical boarding of our soldiers, I have prepared a table to show the thirteen main reasons

in order of importance as to the cause of medical unfitness and rejection. These are as follows:

TABLE III.

	Percentage of total boards
Respiratory disease	11.4
Mental conditions	9.4
Nervous conditions	8.4
Arthritis and rheumatism	8.2
Eye conditions	7.4
Peptic ulcers	6.9
Ear conditions	6.2
Injuries	5.7
Heart conditions	5.0
Foot conditions	4.0
Tuberculosis	3.2
Digestive system (other than ulcers)	2.9
Hernia	2.6
All others	18.7
	100.0

The percentage of peptic ulcers returned from overseas as unfit is surprisingly high, particularly in view of the fact that special attention is paid to this type of case on medical inspections in Canada. The total number of men placed in category "E" shows a decrease from the previous year, a decrease largely due to the constant effort to eliminate incompetent or careless medical examinations. The practice of employing civilian practitioners without military experience has been somewhat disappointing. It has become apparent that medical boards should be composed of Army medical officers exclusively as they develop a thorough knowledge of Army requirements. I might at this time mention that amendments were approved during the past year whereby physical standards for visual acuity and certain specified ear conditions, were lowered. This has resulted in the enlistment of an appreciable number of men who would otherwise have been rejected and the retention of many already serving. A considerable number of "R" recruits (approximately 10%) examined on reposting to Basic Training Centres were rejected. This percentage should decrease as civilian practitioners, who conduct the first examination of "R" recruits under the National Resources Mobilization Act become more familiar with the physical standards of the Army. Insofar as "R" recruits are concerned, eye conditions, followed closely by hernia, constitute the greater percentage of rejections. The common idea that all hernias are easy of detection is an erroneous one, according to our experience.

A very close check is maintained on the control of infectious disease. While I shall not attempt to bore you with a great number of figures, there are a few facts worth recording. Firstly there were approximately 7,300 infectious cases during the past year, which is roughly 28 per 1,000 of hospital admissions. In addition, the incidence of influenza and the common cold occurring in the Active Forces amounted to 9,000 cases over a nine-month period. The influence of influenza and the common cold on the sickness rate is again evident and these bear a direct relation to living conditions.

Laboratory methods have shown that the cases of influenza encountered in 1941 were not due to either influenza A or B virus, but apparently to some other infectious agent or, as yet, an undetermined virus. Research work along this line is being continued. Throughout Canada there were 125 cases of diphtheria, but under the usual precautions, the disease was kept under control.

An epidemic of encephalomyelitis occurred in the Western Provinces in the late summer and during the autumn. More than 1,000 cases were reported in the civil population, with the majority of cases developing in Manitoba and Saskatchewan, in August and September; 51 cases occurred in the Canadian Army (Active Force). This epidemic was shown to be due to the western strain of horse encephalomyelitis, which disease had spread from the Western States and is communicable to man by as yet, unknown channels. A complement fixation test was used as a laboratory method of confirming the diagnosis, in members of our Active Forces.

Among many clinical problems being studied by the R.C.A.M.C. the results of a recent survey of tuberculosis in the Canadian Army should be of particular interest to the medical profession of Canada. As a result of routine x-ray examinations of all men on attestation roughly 1% are rejected because of tuberculosis. From September 1939 to March 1, 1942, 4,000 men were rejected because of pulmonary tuberculosis; 3,600 of these had active or potentially active disease and should be under treatment or supervision. The detection and rejection of these cases of tuberculosis must have markedly decreased the number of men in the Army becoming non-effectives due to tuberculosis. In the first two and a half years of war, only 114

cases of tuberculosis have developed in the entire Canadian Army in Canada and returned from overseas. The detection of 3,600 cases of pulmonary tuberculosis occurring in men who considered themselves fit to join the army must favourably influence the civilian tuberculosis problem. When these cases are detected at the time of enlistment, the Provincial Health Authorities are notified and the man put under supervision or treatment.

Recently, provisions have been made so that students may be enlisted into the R.C.A.M.C. (A.F.) during their last two academic sessions, as well as graduates who are completing their internships. While enlisted in the rank of private, they are paid $1.30 per day, and granted subsistence allowance. On completion of their internship, they are eligible on recommendations, for commissions into the Medical Services of either the Navy, Army or Air Force. Reports up to June 1, 1942, reveal the fact that 322 students throughout the Dominion have enlisted and it is anticipated that two to three hundred are soon to enlist. The Medical Services of the three Branches have been informed, with the excellent co-operation of the Canadian Medical Association, of the number of interns available at the present time, and also of their desires to join any particular branch of the Service.

Before closing, I would briefly like to make known the estimated requirements for the ensuing year. We have presently, vacancies for 300 doctors, and expect that we shall require a minimum of 600 within the next year.

While I do not think that this is the time or place to appeal to the younger members of the medical profession, it is hoped that many will offer their services in the very near future. In the great War 35% of Canadian physicians were, or had been appointed to the C.A.M.C. At the present time only 20% have been appointed. It is reasonable to suppose that if 35% of Canadian physicians were available in the Great War, approximately the same number should be now.

THE MANAGEMENT OF THE CANCEROUS PATIENT UNDER RADIATION THERAPY*

BY CARLETON B. PEIRCE, M.D.

Royal Victoria Hospital, Montreal

CERTAIN of the problems in the management of the cancerous patient have been chosen for this discussion, perhaps, because to the radiologist they present each day some cause for concern, but, chiefly, because each patient coming to the radiologist for treatment represents work requiring close co-operation between the radiologist and the attending physician or surgeon.

All of us are too conscious of the economic problem of the cancerous patient. In some measure the fear of the cost of medical care delays the patient in seeking proper advice and treatment. For many, their reserve funds have been exhausted during months to years of incomplete examination, inaccurate diagnosis, and ineffective treatment. In others, the insidious nature of the disease has delayed diagnosis. This is common experience in gastro-intestinal carcinoma, and we are more and more conscious of the fact that bronchogenic carcinoma is too often discovered incidentally while searching for the cause of symptoms not referable to the chest but to the metastases.

Consequently, every patient deserves as thorough a clinical examination as it is in our power to accomplish. To that must be added the expense of hospitalization, detailed clinical and laboratory studies, surgical intervention, radiation therapy at a properly equipped centre, transfusions, special diets, nursing care, etc. With women, problems arise in the care of the home and children; and in the case of the man, provision for support of the family may be a staggering problem during treatment and convalescence, or in the event of prolonged disability and death.

The supportive treatment, both psychological and physical, of the cancerous patient demands integrity, complete frankness, and perhaps more skill and ingenuity on the part of the physicians interested than any other disease. Regardless of

* Read at the meeting of the Montreal Medico-Chirurgical Society, January 2, 1942.

the usual injunction that the patient is not to be told he has cancer, I would wager that 95 per cent of them know what they have, although they may not wish to admit the diagnosis to themselves. By the laity in general, and unfortunately by many of the medical profession, cancer is considered a hopeless disease. But is it as disabling as heart disease? The period of invalidism is not so long, nor is cancer an infectious public menace such as tuberculosis.

No matter how hopeless the individual situation may appear, I am rarely willing to say that "nothing can be done about it". For, unquestionably, with irradiation the pain of bone metastases can be completely relieved, the ulcerating tumour can be made to shrink, often to heal over with disappearance of the infection and nauseating stench; the discomfort of gastric carcinoma can be alleviated by lavage, and the patient returned to a relatively normal activity, for a time at least. Cures of carcinoma by any means are not frequent when considered on the basis of ten to fifteen year survival rates, but the percentage of cases amenable to palliation should be high, and usually, in our experience, after treatment the final period of invalidism is short and not so very uncomfortable. Hence the maintenance of the morale of the patient and his family is very important. In that field the attending physician, who enjoys the confidence of the patient and his family, can do much to allay their fears, bolster their courage, and advise them in the management of their affairs. There is a common practice of denying to the patient that he has cancer, and then telling the family little or nothing about the situation. The radiologist is forbidden by the attending physician to be frank with the patient, who does not understand why he should be having x-ray or radium therapy, but thanks to the bridge table or the club locker-room fears the worst. And the family has no appreciation of either what should be done to assist, or why. Under such circumstances, when the patient realizes or discovers the diagnosis there will be a resultant loss of confidence in his physicians and a justifiable resort to any sort of quackery which holds out to him a straw of hope. It is to be hoped that in the near future, frank, sensible, joint discussions will be encouraged between each cancerous patient, his immediate family, his attending physician or surgeon, and the radiologist.

From our clinical experience alone we all appreciate that, despite the continued search for and occasionally reputed discovery of a causative agent, cancer is an inherent derangement of the individual, probably inheritable. Cancer tends to induce an anæmia by ulceration and hæmorrhage, or by metastatic displacement of the generative centres, to prevent adequate pulmonary oxygenation of the blood, and to cause the accumulation of or produce in itself toxic waste products. Conservation of energy is necessary. The patient with visceral carcinoma is usually in a somewhat debilitated state when he arrives at the stage of definitive treatment. He needs adequate rest and special diets as much as, if not more than, the diabetic or toxic thyroid case. Anorexia is common. The patient does not maintain an adequate energy quotient nor fluid intake. Hence he must be persuaded by his medical advisers to eat and drink a sufficient quantity, or else intravenous fluids and whole blood transfusions may be required.

There is considerable clinical evidence, with some experimental support, that the cancerous patient requires more of the compounds of the vitamin B complex, especially nicotinic acid and thiamine, than the average human being. The attending physician can be of valuable help in planning the diet to afford these elements. If the anorexia is severe they may have to be introduced artificially. One observer has recently stated that when under radiation therapy, the cancer patient should have 50 mgm. of thiamine and 500 mgm. of nicotinic acid per day in addition to an adequate diet. In our experience so far 25 mgm. of nicotinic acid four times a day will control the nausea, and some patients have reported to us that, despite rather heavy daily doses of x-radiation, they get up in the middle of the night for an extra lunch in addition to four meals during the day.

Roentgen therapy itself is a potent agent in the palliation of pain, due to an apparently direct action on the pain sensory endings, especially in the case of bone metastases. This is well demonstrated in carcinoma of the prostate with spine involvement, or carcinoma of the cervix with extension to the pelvic wall. Additional sedation should be employed when neces-

sary for the comfort of the patient. It has been my experience that the majority of cancer patients can be adequately relieved of their pain with acetylsalicylic acid. Some therapists have had satisfactory results with cobra venom. In the later stages nerve block or selective cordotomy by the neurosurgeon is occasionally advisable. The symptomatic relief of pain is particularly important in the maintenance of the morale of the patient.

Intercurrent infection must be avoided, and if it should occur, must be brought under control immediately. The cancerous patient without such infection has a hard enough time to maintain relative health. In that regard a warning must be uttered here relative to the use of the sulfanilamide series of drugs simultaneously with radiation therapy. There is clinical evidence that the sulfonamides and irradiation are incompatible. The reaction is somewhat similar to that observed in the increased sensitivity to sunlight with the use of the sulfanilamide series, but of more generalized than local effect in the exposed area. I strongly advise against the concurrent administration of irradiation and any of the sulfonamides until more is known about it.

In the case of cancer in or about the mouth, the oral hygiene should be brought to the best condition as early as possible. If radiation therapy is to be used, any questionable teeth should be removed and any appreciable pyorrhœa cleaned up before treatment begins. Due to the effect of irradiation on the vascular structures, an extraction within six months after radiation therapy to the area is liable to be followed by sequestration of portions of the alveolar process and some osteomyelitis. This does not occur if the dental hygiene has been improved before treatment. During treatment, with the progressive dryness of the mouth due to suppression of the salivary glands, and the mucositis, frequent use of saline and hydrogen peroxide mouth washes is very important, especially before and after meals and before retiring.

Time does not permit discussion of many other phases of the general problem, which I shall pass over in order to consider the important matter of the effect of irradiation on normal and cancerous tissue, and the management of the reactions which must be induced.

Permit me to emphasize that the effect of roentgen or radium radiation is always damaging in some degree. There is no so-called purely "stimulating" dose of either x-rays or radium radiation. And repeated small doses may be ultimately more damaging than several large ones. For instance, one of the most potentially damaging doses, if repeated often enough and over a long enough time, is the small amount of relatively unfiltered x-radiation commonly advocated in the treatment of acne. The effect of either x-rays or gamma rays of radium is similar on both normal and cancerous tissue. Mitosis is suppressed, the nucleus may disintegrate, cloudy swelling and vacuolization occur in the cytoplasm, the capillaries dilate, and for a time the muscles in the arterioles lose their contractile power. The endothelium swells to a point of obliterating the lumen, and the lymphocytic cells pass rapidly into senescence. The normal tissue, however, possesses the greater ability to recuperate, and in due time will resume its normal metabolism. The cancer cell either dies or becomes apparently senescent, unable to reproduce. The more active the metabolism of the cell, the more effective will be the result of the irradiation. Hence in the highly matured and differentiated squamous cell carcinoma, larger doses are necessary than in the less differentiated types. If a sufficient amount of irradiation is delivered to a cancer it will be destroyed or so attenuated that it is no longer dangerous to life.

This differential in recuperative power is made use of in the irradiation therapy of neoplasm. But the differential is so narrow that we must produce a considerable reaction in the normal tissue in the process of delivering an adequately lethal or depressant dose to the neoplasm.

A locally destructive dose can be given the superficial small carcinoma, after which the surrounding normal tissue will repair the defect satisfactorily.

In the large surface carcinomas and the visceral lesions, either large skin areas are involved, or multiple ports of entry and fractional daily doses must be used to accumulate sufficient radiation in the tumour without exceeding the tolerance of the skin and tumour bed. Certain reactions of the skin and mucous membranes must be and are intentionally induced by the experienced radiation therapist.

There is a common tendency upon the part of the medical profession, and through it the laity, to use the term "x-ray burn" rather

indiscriminately. I doubt if many physicians who say to a patient or others that he has an "x-ray burn" are ready to go before their medical society or a court of law and accuse their colleague who treated the patient of either ignorance or negligence. For "x-ray burns" are produced only by ignorance or negligence. On the other hand, it has been well known for a long time that the erythema dose is not a gauge of the tolerance of the normal tissue. The apparently severe reactions which must be produced in the skin and mucous membranes during radiation therapy are not productive of gross permanent damage. With proper care these will repair, leaving a soft pliable skin of excellent texture.

Such adequate irradiation may require thirty to forty-two successive treatment-days. I would call your attention to the fact that we do not believe in the massive dose to be given in a few days, nor in the idea that a few dashes of x-ray should be given as a placebo. A patient referred for x-ray therapy of any sizeable lesion should be advised that it will mean about six weeks' treatment.

Under this plan of protracted fractionated irradiation, the skin reaction and mucous membrane reaction will appear between the fourteenth and twenty-first days. The reaction of the skin is called an "epithelitis" or "epidermitis", and that of the mucous membrane a "mucositis". First, there will be an erythema, gradually increasing. The skin may show small vesicles and some weeping, or may simply increase in pigment and become dry and scaly as in heavy exposure to sunlight. If the patient is not careful to prevent rubbing of the clothes, or chafes the tender skin, especially in moist areas such as the axilla or groin, and does not use sufficient borated talcum powder, desquamation of the superficial layers of the skin will follow, with exudation of serum and some oozing of blood. However, if this should occur, and the area is kept dry, exposed to the air, and liberally dusted with powdered boracic acid, the maceration will cease and the region crust over with subsequent satisfactory re-epithelization from the sebaceous and sweat glands or hair follicles. Even in the presence of such a reaction, further irradiation may be continued with reduced daily dosage. I would emphasize that unless this epithelitis is reached in the normal tissue, the cancerous tissue will not be sufficiently affected.

In my opinion, wet dressings are damaging, for they will only increase the maceration of the skin. Heat in any form (poultices, plasters, hot water bottles, baths, etc.) should not be used here any more than one would in excessive ultra violet or sun exposure. Ointments should not be applied save under the specific direction of the radiologist. Dryness is essential, and maceration will continue under a non-absorbable ointment.

In the irradiated mucous membrane, a similar process (mucositis) takes place. Instead of the branny or weeping epithelitis of the skin, a layer suggestive of a heavy leukoplakia or diphtheritic membrane is formed; the mouth becomes dry and the saliva thick and mucoid due to depression of the salivary glands. The sensitivity of the taste buds is depressed and altered. The patient's taste for tobacco is usually permanently lost, and that for liquors diminished for some time. However, we commonly advise the use of sherry and port wine, ale or porter, as aids to the digestion, fluid intake and morale of the patient.

The mouth should be methodically cleansed with alternate weak saline and hydrogen peroxide washes. Some patients like to suck crushed ice on which lemon or orange juice and a little sugar has been sprinkled. Chewing gum containing acetylsalicylic acid may be helpful. As the reaction reaches its height, especially in carcinoma of the posterior mouth, pharynx, larynx or œsophagus, swallowing becomes uncomfortable. The diet suggested in that stage includes finely ground meat, purées of vegetables, milk in various mixtures, egg-nogs with whiskey or brandy, and as much other fluids as possible. Tart fruit juices should have a pinch of soda bicarbonate added. A tablet of acetylsalicylic acid, powdered and dusted on the back of the tongue fifteen minutes before a meal, will make the swallowing more comfortable. We strongly advise that tracheotomy be done before irradiation of a carcinoma of the larynx is begun. If tracheotomy is deferred until it is required as an emergency measure during treatment, serious difficulty usually ensues, with bleeding and occasionally mediastinitis.

The reaction of both skin and mucous membrane not uncommonly begins to fade before the treatment series is finished. Complete recovery may require three months. In the grossly infected carcinomas, such as in the

uterine cervix, the infection subsides and the tumour will shrink markedly during the course of x-radiation. This, with the relief from the stench of the foul discharge and diminished bleeding, improves the patient's morale and the general constitutional state. Further, the subsequent introduction of radium can then be accomplished with relative ease and safety. In ulcerating breast carcinomas the relief from the malodorous discharge is a great boon to the patient and her associates. Alarming hæmorrhage from a sloughing carcinoma under irradiation is rare in our experience.

Under our present method of x-radiation for pelvic or abdominal carcinoma, intestinal disturbance is uncommon. The occasional diarrhœa usually responds to a change in diet with the addition of some barium sulphate, such as is used for barium meals. If a severe proctitis occurs, a temporary colostomy is wise. This is rarely needed, except when the carcinoma has involved the neighbouring intestinal wall.

Douches should be used only under direct supervision by the gynæcologist and the radiologist. Patients should not be permitted to administer these themselves. Tub baths are to be prohibited generally. The use of soap over areas of treated skin should be prohibited until the complete recovery of the skin has been accomplished, and then only certain soaps to be specified by the radiologist. Powdered boracic acid or the borated baby talcums are the best dressing for treated skin.

In the matter of the combination of surgery and irradiation, either the surgical procedure should precede any irradiation, or should be delayed for at least two months after radiation therapy has been completed, to permit adequate recovery of the vascular structures. Otherwise, the surgeon will find himself in serious trouble from friable arteries and arterioles. I repeat that every patient with carcinoma of the larynx should have a tracheotomy before irradiation is started.

Although I firmly believe that it is in the best interests of the patient to remove the primary tumour where practicable, except in carcinoma of the cervix, I consider pre-operative irradiation to be more valuable than post-operative. In that regard, I would remind you of the common experience that the smaller the primary tumour the more diverse are the metastases. Too many patients have local recurrences or distant metastases when first referred for treatment. The primary growth often becomes more readily operable with thorough irradiation, and its cells if disseminated accidentally during the operation will be far less viable.

The attack on cancer should be as carefully planned and coordinated as the defense against an air *Blitzkrieg*. Stirrup pumps, sand buckets, wardens, bomb removal squads, "ack-ack", and night fighter squadrons will be far more effective if the intelligence service, the coastal command, and the long distance bomber squadrons have discovered, interdicted or destroyed the enemy before it can effect an invasion.

In conclusion, I would again emphasize that the treatment of cancer and the management of the patient is a joint problem. It requires the close collaboration of the physician, the surgeon, and the radiologist in the earliest diagnosis, a thorough survey of the situation and resultant joint decision as to how best to treat the individual, followed by close supervision of the patient throughout the treatment and for months to years afterwards.

The courtesy of Dr. Gordon E. Richards, Toronto, in loaning kodachrome slides for illustration at the presentation of the paper is gratefully acknowledged.

SUGAR DISORDER FOUND IN "SMOKE" DRINKERS.—Discovery of a sugar disorder that afflicts "smoke" drinkers is announced by Dr. Thomas McP. Brown and Dr. M. A. Harvey, of the Johns Hopkins Medical School and Hospital. (*Journal, American Medical Association*, July 5th.)

Technically, the condition is termed hypoglycæmia, meaning a deficiency of sugar in the blood. It was discovered in alcoholics brought unconscious to the Johns Hopkins Hospital. The patients had all been chronically addicted to alcohol, drinking it in the form of denatured alcohol known locally as "smoke", because of the milky or "smoky" appearance of the drink which is made by adding such substances as varnish and paint removers, anti-freeze and "canned heat" to water.

In only one of the six cases was there any sign of damage to the liver and none of the patients complained of difficulty in seeing, although tests of the denatured alcohols used in the "smoke" always showed the presence of methyl (wood) alcohol.

In some of the patients, arms and legs were held rigidly extended, so that it was almost impossible for an attendant to bend them.

After discovering the blood sugar deficiency in two of the patients, who recovered without specific treatment, the other four were given sugar solution injections into the veins. This treatment brought a rapid and dramatic recovery.—*Science News Letter*, August 2, 1941.

THE USE OF TESTOSTERONE PROPIONATE IN GYNÆCOLOGY*

BY ELINOR F. E. BLACK, M.D., M.R.C.O.G.†

Winnipeg

THE increasing use of androgenic substances in gynæcological disorders warrants the reporting of clinical experiences with this relatively new form of therapy.

It has long been known that in the endocrine make-up of each sex there are essential elements of the opposite sex; thus, in male urine are found œstrogens, and in female urine are found androgens.[8] Koch[18] estimates that whereas an adult man excretes 63 to 68 I.U. of androgenic substances per day, an adult woman excretes 42 to 56 I.U. In the normally functioning human these antagonistic elements are properly balanced; if marked imbalance occurs well-known manifestations of intersexuality appear. Less obvious results of probable mild imbalance are to be seen in the hyperœstrogenic female with symptoms of excessive uterine hæmorrhage, premenstrual tension and painful breasts, and perhaps even fibroids. It is in an effort to restore the androgen-œstrogen balance in this latter type of woman that the exogenous administration of male hormone is undertaken. The substance used is testosterone propionate, testosterone is synthetically derivable from cholesterol, and its propionate is the most powerful androgenic product yet available. In fundamental chemical structure testosterone is similar to progesterone, œstradiol and corticosterone, thus indicating a close link between the hormones elaborated by the testes, the ovaries and the cortex of the adrenals.

In the autumn of 1937, Zuckerman[29] and Hartman[14] published studies on the inhibition of menstruation in female monkeys by the administration of testosterone and testosterone propionate. At that time I was privileged to attend the Endocrine Clinic which was held by Mr. P. M. F. Bishop at Guy's Hospital; he was greatly interested in Zuckerman's work and the possible potentialities of its application to human cases. Thus my interest was aroused, and on returning to private practice in 1938 I began using male hormone therapy in carefully selected cases. In this paper I report the results of the treatment in ten of these cases, my findings being in general agreement with those of other investigators. In the spring of 1938, Loeser[20] and Foss[10] both reported clinical experiments with testosterone propionate in functional menorrhagia; since that time, both experimental and therapeutic work have been reported in increasing volume and with growing enthusiasm, satisfactory results from the use of male hormone therapy being claimed in menorrhagia, metrorrhagia, dymenorrhœa, mastalgia, mastopathies, fibroids, menopausal symptoms, inhibition of lactation, alleviation of after-pains, premenstrual congestion, intermenstrual pain, hypertrophy of the cervix and pelvic inflammatory diseases.

The main difficulty in assessing the value of androgens in conditions referable to menstrual dysfunctions arises from the natural variability of the menses, whether from endocrine, psychological, or external factors, none of which are yet fully understood. It is a well-known fact that gross menstrual abnormalities may occur suddenly from no demonstrable disease, and may disappear as suddenly without treatment. Whether pituitary control is behind the endocrine factor in these anomalies is problematical; however, it is probably through the pituitary that the male hormone acts to ameliorate certain symptoms in the female.[7, 11, 24, 26] The exogenous administration of androgenic substances appears to inhibit the elaboration of both gonadotrophic hormone by the hypophysis and œstrogens by the ovary; these two actions may be interrelated. The resultant local effects produced are hypoplasia of the endometrium and regression of the epithelial cells of the vagina.[11, 24, 26] Excess administration of male hormone will cause the appearance of masculinizing signs such as amenorrhœa, complete atrophy of the endometrium, hoarseness, hirsutism, enlargement of the clitoris, weight gain, and acneform skin eruptions; however, cessation of treatment is followed by an apparent return to the normal androgen-œstrogen balance which is then maintained for a variable length of time.

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† Lecturer in Gynæcology and Obstetrics, University of Manitoba; Assistant Obstetrician, Winnipeg General Hospital.

In dysfunctional uterine hæmorrhage it is assumed that the over-production of œstrogens causes abnormal stimuli to the bleeding reflex of the endometrium; male hormone therapy appears to damp down this ovarian excess. This same action is probably operative in the relief of premenstrual tension, painful and nodular breasts, and menstrual exacerbations in tuberculous patients.[6, 16] In the alleviation of menopausal symptoms and the suppression of lactation, an hypophyseal effect would seem to be predominant. The rationale behind the treatment of dysmenorrhœa and after-pains with male hormone presupposes an inhibiting effect on the contractility of the uterine musculature.[2, 25]

The hope that fibroids would regress under this new type of therapy appears to be unfounded; while the patient is under treatment no increase in size of the tumours is noted, and abnormal bleeding can be controlled, but symptoms will recur on cessation of therapy in a large percentage of cases.[23, 26] The curative action of testosterone propionate on pelvic inflammatory disease reported by Stone[27] requires corroboration.

At the beginning of male hormone therapy in women intramuscular doses of 1,000 mg. per month were advocated,[12] but clinical experience has shown lower limits of effectiveness which avoid unpleasant virilizing symptoms of overdosage. Controversy still exists over the optimal monthly dosage, figures ranging between 300 to 10 mg.[4, 22, 28] being given; this apparent disparity is probably largely due to individual variations in the endocrine make-up of patients which is a most important factor, as treatment must be adapted to the response of each individual. Testosterone propionate can be injected subcutaneously giving a more prolonged effect due to slower absorption. Percutaneous administration by means of ointments is used, but 3 to 6 times the dose must be given to obtain results comparable to the injection method.[1] During the past year the orally active methyl testosterone has been available; it is approximately one-fourth as effective as testosterone propionate.[9] Subcutaneous implantation of pellets of crystalline testosterone propionate has been tried by some investigators[21, 26] but has not proved very satisfactory, probably owing to variable tissue reaction at the site of the implant affecting absorption.

The following clinical reports are taken from case histories of private patients.

CASE 1

Mrs. L.W., aged 30 years. Menses: Onset 15 years; regular, 28/7; flow very profuse and clotted requiring bed-rest for first two days; severe dysmenorrhœa fairly constant. No gross pelvic disease other than a small acutely anteflexed uterus. Patient had been treated during the previous four years with APL, progesterone, and theelin with no satisfactory improvement.

On November 7, 1938, 25 mg. testosterone propionate were injected intramuscularly; this dose was repeated every second day to a total of 125 mg., when a period slightly less in amount than usual occurred. Two hundred and twenty-five mg. were given before the December period at which the blood loss was only about one-half the usual flow. The patient complained of tightness in the throat, so treatment was discontinued. However, the January period was again incapacitating, so injections were recommenced in February on a plan of giving 200 mg. intermenstrually. This was done during the next three months resulting in periods normal in amount, although dysmenorrhœa remained constant and severe. Treatment was stopped after a total of 900 mg. had been given, and her periods remained normal throughout the year. Patient married in January, 1940, became pregnant the following month, and was delivered of a normal full term female, 7 lb. 8 oz., in November, 1940. Lactation was normal for four months, during which no periods occurred. Menstrual cycle was re-established in April, 1941; flow has been normal in amount with slight dysmenorrhœa (Fig. 1).

CASE 2

Mrs. R.C., aged 36 years, gravida-2, para-2. Pregnancy in October, 1938, terminated in stillbirth at 8 months due to placenta prævia; post-partum course was normal until the 18th day, when irregular uterine bleeding began which persisted until March, 1939, when a curettage was done. Amenorrhœa was present for two months, following which irregular bleeding occurred again; treatment with APL and emmenin proved ineffective during the ensuing months.

When first seen on October 3, 1939, patient's hæmoglobin was 56 per cent; bright blood was issuing from the patulous os of the soft cervix, but no gross pelvic disease was evident. Friedman test was reported "definitely negative" on October 5, 1939. Fifty mg. testosterone propionate were injected intramuscularly every third day for 4 doses, then 25 mg. every fourth day for 4 doses; bleeding stopped after the third injection. Amenorrhœa followed for 4 months. The menstrual cycle was re-established normally on March 1, 1940, and continued until August, 1940, when pregnancy occurred. Natural delivery of a normal 9 lb 6 oz. male took place June 14, 1941. Lactation and puerperium were normal. The menstrual cycle has been normal since August, 1941 (Fig. 2).

These two cases are satisfactory and complete; male hormone therapy effected a cure where other measures had failed, and no adverse results were produced, as is shown by the normal pregnancies. Huffman[17] reports similar cases, and arrives at the conclusion that no deleterious effects on reproduction in the female are caused by this treatment. It is interesting to note that the dysmenorrhœa in the first patient was not relieved; this is not in agreement with the findings of several other investigators.[1, 13, 25, 26]

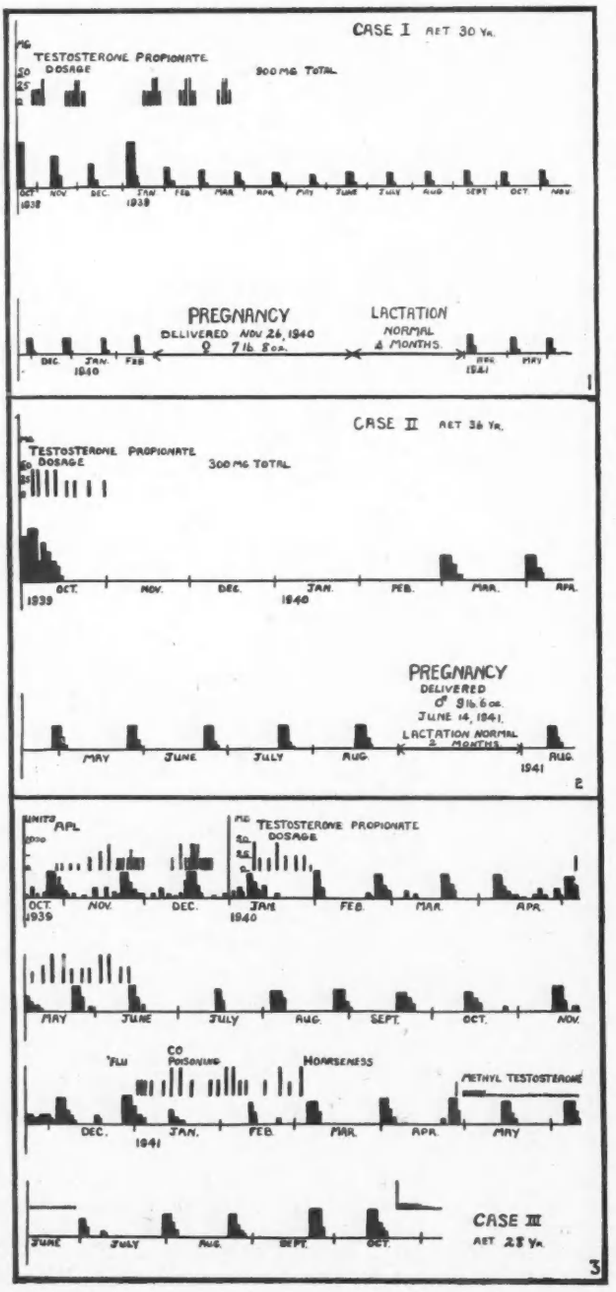
CASE 3

Miss L.M., aged 28 years. Menses: Onset 15 years; irregular 21-30/4-5; always profuse with severe dysmenorrhœa. A Gilliam suspension was done in 1934 with no relief. Menometrorrhagia occurred for some months prior to August, 1939, when a dilatation and curettage

was done. A communication from her doctor stated that "several polypoid masses of endometrium were removed, the largest being almost 2 inches in length". Irregular hæmorrhages commenced 6 weeks after operation.

When the patient was first seen October 18, 1939, no gross pelvic disease was obvious other than a boggy cervix. The patient was started on injections of APL every 2 to 3 days, and by the end of December, 1939, 15,900 I.U. had been given with no improvement, *i.e.*, she continued to have sudden hæmorrhages if subjected to any physical or emotional stress. On January 10, 1940, 50 mg. testosterone propionate were given intramuscularly and injections repeated every 2 to 3 days to a total of 235 mg. in three weeks. Slight bleeding occurred on only three occasions. This improvement continued until, following the March menses, sudden irregular and profuse hæmorrhages began again. Testosterone propionate therapy was started again on May 6, 1940, to a total of 400 mg. by the end of June; no intermenstrual bleeding occurred after the first injection, until midway between the October and November periods. During the summer months the periods had been fairly heavy with severe dysmenorrhœa. Intermittent bleeding began in November, 1940, and two very profuse periods occurred in December, one of which coincided with a severe attack of influenza. A third course of treatment was started in January, 1941, with similar good results apart from one episode of bleeding which was coincident with exposure to carbon monoxide with a mild degree of poisoning.

By March 3, 1941, the patient had had 595 mg. testosterone propionate in this course, and slight hoarseness was noticed; no other signs of virilism. Treatment was discontinued until May, 1941, but as symptoms began to recur methyl testosterone therapy of 5 mg. daily was started and continued to a total of 350 mg. This gave satisfactory results until October 1941. Periodic oral therapy is being continued (Fig. 3).



The underlying condition in this patient appears to be excessive glandular hyperplasia of the endometrium; apparently this is kept in check while male hormone is being administered, but so far a permanent restoration of the normal androgen-œstrogen balance cannot be claimed, and certainly the dysmenorrhœa has remained recalcitrant to therapy. However, the patient is very pleased with the results of the treatment, and from this point of view the case can be considered satisfactory.

CASE 4

Miss L.B., aged 31 years. Menses: Onset 13 years; irregular 3-4 wk./8; profuse with mild dysmenorrhœa. Breasts were always very painful premenstrually. When first seen February 3, 1941, the left breast was inflamed; this cleared up in two days with hot fomentations. Both breasts were nodular and tender on palpation. No gross pelvic disease was evident. Patient was started on percutaneous administration of testosterone propionate in 4 mg. doses for a week and then switched to methyl testosterone 5 mg. daily for two months. Breast pain subsided completely, and the menses were less profuse during therapy. Treatment was not continued due to the expense.

Amelioration of the breast pain was satisfactory in this case, although no change in nodularity was noted during the short time that treatment was carried out.

CASE 6

Mrs. S.S., aged 47 years; gravida-3, para-2. When first seen May 13, 1941, this patient had been bleeding profusely for 3 weeks following three months' amenorrhœa. Menses had been irregular for two years, following "injections" for severe and continued bleeding. Pelvic examination showed no gross disease. Curettage was done two days later. The pathological report on the very profuse scrapings was "glandular hyperplasia of endometrium". Profuse bleeding began 23 days postoperatively and continued with no decrease for five days. On June 12, 1941, 25 mg. testosterone propionate were injected and 5 mg. methyl testosterone daily taken for the next six weeks; total dosage, 245 mg. Normal moderate periods have occurred at 28 day intervals since start of male hormone therapy.

The menopausal hæmorrhage in this type of case is insufficiently controlled by curettage, and irradiation is usually resorted to. Three other of my patients with similar histories have responded equally well to testosterone propionate.

One of them was given only 175 mg. in July, 1939, and has since had normal periods at intervals of 6 to 8 weeks. Perhaps the small amount of exogenous androgen may have induced an endogenous readjustment of the androgen-œstrogen balance in this patient, but this possibility cannot be stressed.

CASE 7

Mrs. R.L., aged 26 years; primipara. Forceps delivery on May 17, 1941, of 7 lb. 8 oz. female. Baby died of intracranial hæmorrhage 56 hours after birth, by which time the mother's breasts were filling and causing discomfort. Fifty mg. testosterone propionate were injected subcutaneously and breast discomfort subsided completely within 8 hours. No lactation nor engorgement appeared throughout a normal puerperium.

The relief of the breast discomfort in this patient was dramatic, although the dosage was smaller than that advocated by some investigators.[5, 9, 19] The complete suppression of lactation by hormonal substances can be accomplished only before that process has been completely established. The time of treatment for optimum effect must be during the hiatus between withdrawal of the œstrogenic principle and the elaboration of prolactin,[9, 15] approximately 48 hours post partum. If lactation is already established testosterone propionate is incapable of inhibiting the function; also, investigators[3] have shown that the mechanical stimulus of a regularly and actively suckling infant will offset any inhibiting effect of even very large doses of hormonal substances. Doses of 5 to 10 mg. testosterone propionate daily will relieve painful breast engorgement in the nursing mother without adversely affecting the actual milk production.[2, 9]

CASE 8

Mrs. H.M., aged 52 years; gravida-5, para-3. History of increasing menorrhagia at 3 to 5 week intervals for one year; also, frequent hot flushes, headaches and lassitude. When first seen September 4, 1941, pelvic examination revealed a rectocele, boggy cervix, and the uterine body slightly enlarged and irregular with small intramural fibroids; adnexa appeared normal. Blood pressure 185/100; hæmoglobin 75 per cent. Twenty-five mg. testosterone propionate were injected intramuscularly, and 5 mg. methyl testosterone taken daily for 30 days. Scant periods occurred in September and October after a total dosage of 175 mg. When seen again on October 9th, the patient felt very much better, and reported a marked decrease in the frequency of headaches and hot flushes; the cervix was smaller and firmer, and the blood pressure was 140/90.

In this type of menopausal patient with small fibroids, male hormone therapy should prove useful in controlling hæmorrhage until the bleeding phases of the endometrium are over, thus obviating the need for hysterectomy or irradiation. Treatment of this patient is still too recent to evaluate the final effect, but interim results are satisfactory as regards the control of the menopausal molimina.

CASE 10

Mrs. C.G., aged 29 years; nullipara. Menses: Onset 13 years; regular 32/8; flow always heavy, but becoming more profuse; no dysmenorrhœa except for slight left lower quadrant pain. Pelvic examination on June 20, 1941, revealed the uterus in normal position with a small fibroid on the right posterior surface; cervix and adnexa appeared to be normal. As her hæmoglobin was 55 per cent, patient was put on intensive iron and calcium therapy and bed-rest during periods. She returned September 2nd, feeling and looking better, but complained of increased bleeding with the July and August periods. The uterus had increased to the size of an orange, and was more irregular in outline, suggesting multiple fibroids. Twenty-five mg. testosterone propionate were injected intramuscularly, and 10 mg. methyl testosterone taken daily for two weeks. However, the September period was more profuse than ever, so hysterectomy was advised. At operation two medium-sized fibroids were found, one intramural, and one submucous.

This girl represents the futility of attempted amelioration of bleeding symptoms where multiple fibroids are present during the active menstrual years. Probably the hæmorrhage could have been controlled by massive doses of testosterone propionate, but the impracticability of carrying on extremely expensive treatment for years is obvious, particularly when experimental work has shown that cessation of treatment will result in the return of symptoms.[26] Hysterectomy, while radical treatment in so young a woman, at least gives a speedy and permanent cure.

This experience of over three years is fully in agreement with those of others that male hormone therapy has a definite use in the treatment of gynæcological conditions, but no presentation on the subject is complete unless words of warning are added.

Firstly, cases must be chosen with great care, particularly the dysfunctional hæmorrhages, to rule out conditions such as retained products of conception, uterine and cervical polypi, and malignancies. It is inexcusable to use male hormone therapy in the "spotting patient" without a preliminary diagnostic currettage, which very often is sufficient to effect a cure without further treatment.

Secondly, the tendency to masculinization must not be minimized. The psychological effect on the patient of even transient changes must be kept in mind.

Thirdly, this type of therapy is still too recent to estimate any possible later imbalance which may be caused in the numerous endocrine interrelationships which are not yet fully explored.

Fourthly, the cost of male hormone products is prohibitive for the average class of patients. This is probably a good feature of the treatment, because it prevents the use of testosterone products as a casual form of therapy in the menopausal patient, too many of whom are unfortunately prescribed for without a pelvic examination being made.

I wish to express my appreciation to Prof. A. T. Cameron of the Department of Biochemistry of the University of Manitoba for his very helpful criticism in the preparation of this paper.

I am indebted to the Ciba Company, of Montreal, for liberal samples of "Perandren" at the outset of this clinical work.

A complete list of references can be obtained from the author. The numbers in the text refer to this list.

RÉSUMÉ

L'administration de propionate de testostérone a été entreprise pour rétablir l'équilibre androgène-œstrogène chez certaines femmes hyperœstrogéniques présentant des hémorrhagies utérines excessives, de la tension prémenstruelle et de la mastodynie. Le présent travail est basé sur l'observation de 10 malades favorablement influencée par le traitement. L'administration de substances androgéniques semble inhiber l'élaboration de l'hormone gonadatropique par l'hypophyse et des œstrogènes par l'ovaire. L'action du propionate de testostérone sur les fibrômes paraît évidente mais cette action cesse si le traitement est interrompu. Le dosage mensuel varie entre 10 et 300 milligrammes. Les malades ainsi traitées doivent être choisies avec soin. Un curetage diagnostique est essentiel. Il ne faut pas masculiniser les malades à l'excès. Il est possible qu'à la suite de ce traitement d'autres déséquilibres interglandulaires surviennent.

JEAN SAUCIER

CHANGING CONCEPTS OF PYELONEPHRITIS*

BY WILLIAM BOYD

Department of Pathology and Bacteriology, University of Toronto

IT sometimes happens that with the passage of time our concept of a disease undergoes a marked change. At first the obvious is described. It is only later that mild manifestations, unusual forms, and late sequelæ come to be recognized. The early students of syphilis could hardly be expected to realize the real nature of a gumma or general paresis. This is particularly true of pyelonephritis.

In the first edition of Osler's textbook (1892) pyelonephritis is a synonym for pyelitis, more particularly those cases where the inflammation of the renal pelvis involves the kidney. It is a suppurative condition, and there is no mention of a chronic form, nor of pregnancy as a cause. Even in the twelfth edition (1935) there is still no reference to chronic forms of residual lesions other than pyonephrosis. A curious note is to be found in Porter's[9] "Practical Treatise on Renal Diseases": "Pyelonephritis is of special interest in connection with surgical operations, as it often develops just prior to or is directly induced by the operation. In either instance the result is fatal. This is one of the great dangers in genito-urinary surgery and one which is unavoidable by the surgeon." I may add that this was in 1887.

Most of us were taught as students that pyelonephritis is an acute suppurative condition affecting the renal pelvis and the substance of the kidney, frequently leading to marked destruction of renal parenchyma with the formation of cavities. A gradual change has come over this conception, a change involving both the clinical and pathological pictures, and including two new ideas of fundamental importance. These are first the concept of an atrophic contracted kidney with accompanying renal insufficiency as an occasional end-result, and second the realization of the possible relation of pyelonephritis to arterial hypertension.

The chief causal organisms are the pyogenic cocci, principally streptococci and staphylococci, and *B. coli.* The organisms may reach the kidney either by the blood stream or by way of the lower urinary tract. There is difference of opinion as to which of these is the commoner. It is safe to say that in children the great majority of infections are hæmatogenous in origin. In my own autopsy material most of the patients have been over middle-age, and have suffered from such conditions as prostatic disease, carcinoma of the cervix, and other lesions likely to lead to urinary infection. But urinary tract obstruction may favour hæmatogenous as well as ascending infection. G. K. Mallory and his associates[8] have shown that when bacteria are injected intravenously in rabbits, the result depends on whether or not the ureter was tied for a few days. When this was done pyelonephritis developed in the great majority of cases; when the ureter was left unobstructed infection of the kidney rarely developed.

* Read at the Seventy-second Annual Meeting of the Canadian Medical Association, Winnipeg, June 25, 1941.

Pyelonephritis is fundamentally an inflammation of the interstitial tissue of the kidney. The inflammatory lesions may be acute, chronic or healed. The acute stage is suppurative and the symptoms are local and referable to the urinary tract. The suppurative lesions in the medullary portion take the form of yellow streaks, but in the cortex they may be more rounded. In the common ascending type the lesion tends to spread out as it approaches the surface, so that the area becomes wedge-shaped and may resemble an infarct. Actual abscess cavities may develop, but these usually remain quite small. In the majority of cases the acute lesions are benign and heal, leaving small scars which interfere in no way with the function of the kidney. In young persons scars in the kidney are most likely to be of pyelonephritic origin. The microscopic picture of the acute stage is either one of frank abscess formation, or an interstitial infiltration of polymorphonuclear leucocytes with a varying degree of tubular destruction. Many of the tubules are filled with leucocytes (Fig. 1). The principal clinical features of the acute stage are pain and tenderness over one or both kidneys, dysuria and pyuria. Urinary obstruction, when pronounced, changes the picture for the worse; hydronephro-

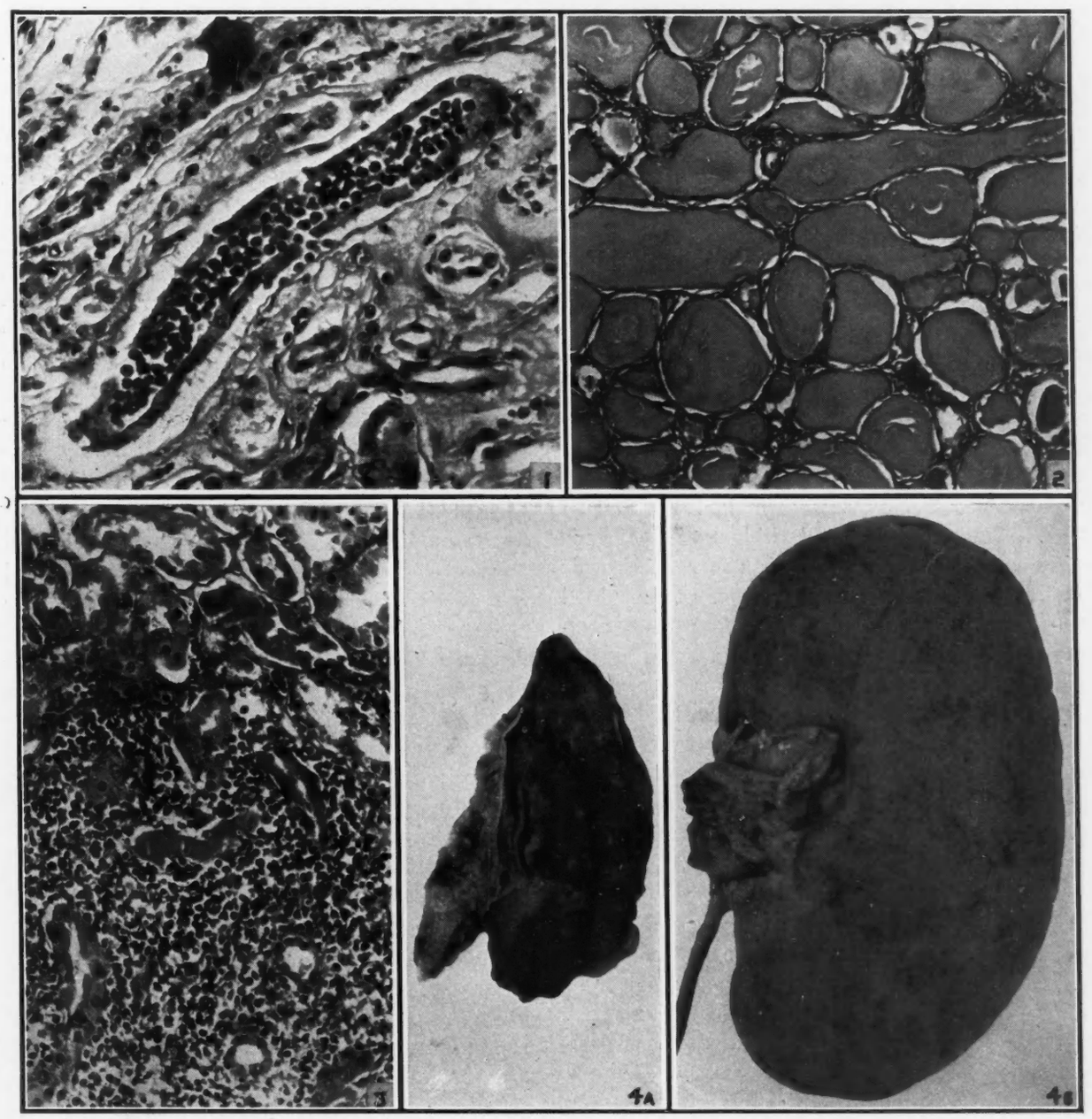


Fig. 1.—Pus cells in collecting tubule. **Fig. 2.**—Tubules distended with colloid casts. **Fig. 3.**—Extensive replacement or renal tubules by round cells. **Fig. 4.**—A, contracted kidney contrasted with B, normal kidney.

sis develops which soon becomes pyonephrosis, there is marked destruction of renal tissue, and the kidney is finally converted into a bag of pus.

The inflammation may become chronic. It may persist in a chronic form, sometimes for years, or may finally heal. In both of these cases the entire kidney tends to be involved, although under the microscope unaffected areas will also be found. With the passage of time more and more renal tissue will be destroyed and replaced by fibrous tissue. The kidney shows the effect of this scarring by shrinking in size and becoming grossly or finely scarred. The term atrophic pyelonephritis conveniently includes both the chronic, though still active, form and the healed diffuse form. If hydronephrosis is also present the kidney may be enlarged rather than contracted. In the chronic form it is easy to determine microscopically the pyelonephritic character of the lesion, but in the healed diffuse type the true nature of the lesions may easily be missed. Each depressed scar represents a healed area of inflammation, and as the lesions are frequently wedge-shaped, it is obvious that they may resemble old healed infarcts. The pyelonephritic scar tends to be U-shaped and dark in colour, whereas scars due to vascular occlusion are more V-shaped and pale. When the original inflammation has been more diffuse than focal, the scarring is finer, the intervening normal areas smaller, and the picture may be indistinguishable from that of the granular contracted kidney of chronic Bright's disease. Indeed it *is* a form of chronic Bright's disease, a form which must be added to the other two which compose that complex, namely glomerulonephritis and arteriolar nephrosclerosis. Both kidneys are commonly involved, but the disease may be confined to one side. These unilateral cases are now attracting widespread attention on account of their possible relation to hypertension and the advisability of surgical removal for relief of that condition.

It is only in recent years that the natural history of the disease has been recognized, and particularly the fact that in the chronic stage the lesions are usually non-suppurative and therefore not necessarily associated with pyuria. Chronic pyelonephritis is a much commoner disease than has hitherto been recognized. I know that in my own material it has been frequently overlooked in the past, being mistaken for arteriolar nephrosclerosis, for healed infarcts, or for congenital aplasia of the kidney. It seems likely that as the result of modern chemotherapy the late results of pyelonephritis will be seen much less frequently in the future.

While it is true that pyelonephritis is an inflammation of the interstitial tissue, important changes are occurring in the tubules and arteries, and secondarily in the glomeruli. The convoluted tubules undergo marked atrophy, and polymorphonuclear leucocytes may be seen, particularly in the collecting tubules. In the late stages some of the scarred areas may present a peculiar and characteristic appearance, for groups of tubules become greatly dilated, their epithelium flattened, and the lumen filled with colloid-like casts, so that the picture may resemble to an astonishing degree that of the thyroid gland (Fig. 2). The origin of this substance is not certain. It may represent albuminous material from the blood vessels, but Mallory in the paper already referred to has brought forward evidence that, at least in experimental pyelonephritis, accumulations of polymorphonuclear leucocytes in the tubules disintegrate, and the fused nuclear material becomes converted into the colloid casts. The glomeruli of the affected nephrons are also involved; adhesions develop between tuft and capsule, there is periglomerular fibrosis, the glomeruli become hyalinized and finally disappear.

Such widespread destruction of nephrons must result in renal insufficiency. The pathological picture is that of chronic Bright's disease and the patient is likely to die of uræmia. The features most likely to assist the pathologist in the task of differentiating pyelonephritis from the other two forms of Bright's disease are the coarser scarring and gross irregularity of the surface, the occasional unilateral character of the lesion, widening of the renal pelvis and thickening of the pelvic mucosa, the dilated tubules filled with colloid casts, and the interstitial infiltration with leucocytes, lymphocytes, plasma cells and sometimes eosinophils (Fig. 3).

Significant changes also occur in the vascular tree of the kidney. The *arteries* in the scarred areas show a productive endarteritis, *i.e.*, a proliferation of the intimal connective tissue, with consequent narrowing of the lumen. This is the type of lesion commonly seen in any area of chronic inflammation, as, for instance, in the base of a peptic ulcer. In the *arterioles* there is a hyperplastic sclerosis with thickening of

the entire wall and narrowing of the lumen. The inevitable result of these vascular changes is renal ischæmia with the possibility of arterial hypertension.

The concept of a relationship between renal ischæmia and hypertension is a recent advance of the first importance. It had long been evident that the two conditions most constantly associated with persistent hypertension, namely, chronic glomerulonephritis and arteriolar nephrosclerosis, were marked by a great diminution in the vascular bed of the kidney. The final proof of the effect of renal ischæmia on blood pressure was provided by the experimental work of Goldblatt[5] in 1934, who rendered the kidneys of dogs ischæmic by slowly narrowing the lumen of both renal arteries by means of adjustable clamps, with resulting permanent hypertension.

The presence of normal renal tissue is fatal to the success of these experiments. Goldblatt had to obstruct both renal arteries; if only one artery was compressed the other kidney had to be removed or persistent hypertension would not develop. This suggests two possibilities. (1) A pressor substance capable of causing general hypertension is produced as the result of renal ischæmia, but this substance is excreted so rapidly by a normal kidney that it is without effect. (2) The pressor substance may be neutralized by something produced by the normal kidney. It is interesting to recall that as long ago as 1898 Tigerstedt and Bergman[10] demonstrated that an extract of kidney contained a substance which raised the blood pressure considerably, a substance which they named renin.

In spite of this experimental work clinical and pathological evidence indicates that in man unilateral renal ischæmia may result in hypertension. In this respect man represents the rat rather than the dog, for Wilson and Byrom[12] have shown that compression of one renal artery in the rat will cause permanent hypertension. The following history illustrates the association of hypertension with unilateral pyelonephritis.

A man, 53 years of age, suffered from dyspnœa for 3 years. Signs of cardiac failure developed 10 months before death. He was admitted to hospital on two occasions, and each time the blood pressure was markedly elevated. On his final admission it was 240/160. The urine contained some albumin, but no pus. The non-protein nitrogen was 54. A diagnosis of primary or essential hypertension was made, and some four months later the patient died of congestive heart failure. At autopsy there was marked cardiac hypertrophy, the heart weighing 610 gm. The left kidney was small, weighing only 50 gm., the surface was roughly scarred, and the cortex markedly thinned in places. The pelvis and calyces were greatly dilated, the wall of the pelvis thickened, and there was no communication between pelvis and ureter. The right kidney presented a marked contrast, for it was of normal size, weighed 160 gm., the surface was smooth, and the renal pelvis normal.

This is an example of hypertension associated with healed unilateral pyelonephritis, but of course one swallow does not make a summer.

It is now a matter of common knowledge that pyelonephritis and arterial hyertension are often associated, and that in occasional cases the renal lesion may be unilateral and therefore susceptible to surgical treatment. The frequency of this association, however, is still a matter of dispute. Weiss and Parker,[11] whose studies are largely responsible for the recent awakening of interest in pyelonephritis, estimate that the disease is responsible for 15 to 20 per cent of all cases of malignant hypertension. Other workers do not find an appreciable difference between the incidence of hypertension in pyelonephritis and that in the general population of the same age. Thus Crabtree and Prien[3] found only 2 instances of hypertension in 30 cases of severe bilateral pyelonephritis of pregnancy from 10 to 18 years after the initial infection. In my own material there were 8 instances of hypertension in 38 cases of chronic pyelonephritis. Most of these patients were well over middle life, an age period in which the incidence of hypertension increases quite apart from pyelonephritis.

It is in children that one finds the most convincing evidence of a relationship between the two conditions, for hypertension is rare at that age, whilst pyelonephritis is not uncommon. Longcope[7] long ago called attention to the fact that in children pyelonephritis may pass from the acute to the chronic or healed stage, and may then be characterized not only by renal insufficiency but also by hypertension.

In a few cases removal of a unilateral pyelonephritic kidney has been followed by marked temporary and in some cases permanent relief of the hypertension. A wave of enthusiasm for this procedure seems to be sweeping the country, but many of the published cases have been disappointing, and it must be remembered that there are probably ten or twenty failures for every one success which gets into the literature. It is a rule for the blood pressure to fall after the operation, and it may remain low for some time, but then it begins to rise.

The following case illustrates these points. For permission to refer to the clinical and patho-

logical features I am indebted respectively, to Drs. Gordon Foulds and William Magner.

The patient was a woman, 37 years of age, who was treated for pelvic cellulitis in the Toronto General Hospital in 1923. Some months later she developed frequency of micturition, dysuria and pyuria; cystoscopic examination showed a nearly functionless hydronephrotic left kidney. During the next ten years she frequently attended the Out-Patients' Department of the Toronto General Hospital, but on the only occasion that the blood pressure was taken (1935) it was normal. In 1936 she began to develop evidence of hypertension, and the study of the case was continued at the Women's College Hospital. In 1940 the blood pressure was never below 200/110. During the summer and autumn of 1940, almost constant severe headache and frequent vomiting incapacitated her. Even after two weeks in bed the hypertension remained unchanged. As the right kidney was shown to be normal, the left kidney was removed on December 6, 1940. On the following day the blood pressure dropped to 140/90. The pressure began to rise again in the middle of March, 1941, and there was slight headache for a few weeks. This followed a flare up of right-sided pelvic cellulitis. During July and August the blood pressure rose to its pre-operation level. After ureteral dilatation early in September it fell to 140/90. Since October, 1941, she has been employed in a warehouse 44 hours a week. During this time the blood pressure has once been recorded at 184/100. Only once has any headache been experienced during this period. On January 3, 1942, the blood pressure was 158/85.

The kidney was contracted to an extraordinary degree, weighing only 25 grams (one-sixth of the normal weight) (Fig. 4), and presented a coarsely granular and scarred appearance. On the cut surface it was difficult to distinguish between cortex and medulla, which together measured on an average only 10 mm. The pelvis was greatly thickened but not dilated. The ureter was thick-walled. Microscopically every feature of a nearly healed pyelonephritis could be observed, including profound scarring, colloid casts, endarteritis obliterans of the arteries and arteriosclerosis of the arterioles. It was a classical picture of an ischæmic kidney.

There can be no doubt that pyelonephritis may be the starting point of hypertension, although it is doubtful if it plays the dominant rôle which some would attribute to it. The difficulty is that the kidneys from two different persons may present an identical appearance at autopsy, and yet during life one may have had a normal blood pressure and the other marked hypertension. It is probable that constitutional and other factors play a part. From the analogy of Goldblatt's work, and the lesions in glomerulonephritis and arteriolar nephrosclerosis, it seems probable that renal ischæmia is the essential factor responsible for the heightened blood pressure of those cases in which pyelonephritis and hypertension are associated.

So far no satisfactory hypothesis has been suggested to explain the relation between the ischæmia and the hypertension. The formation of a pressor-producing substance, renin, by the ischæmic kidney may be accepted, a conception which has been strengthened by Houssay's recent experimental work. But the mechanism of production still remains a mystery. Attention has recently been directed to the so-called juxtaglomerular apparatus. It is rather remarkable that this structure, which can be readily seen in any kidney, was only described for the first time ten years ago, and even yet has not found its way into the standard textbooks of histology.

In the angle between the afferent and efferent arterioles there is a group of cells first described by German authors as the *Polkissen* or cushion. In looking for this group the eye is attracted by a distal convoluted tubule lying adjacent to the glomerulus. The nuclei of this tubule on the side nearest the glomerulus are crowded together in a characteristic fashion, to produce what is known as the macula densa. The cells of the *Polkissen* resemble those of the glomus, a neuromyoarterial structure believed to regulate the flow of blood through digital and other arteries of the limbs. The *Polkissen* has a similar structural relationship to the afferent arteriole of the glomerulus and may possibly play a similar physiological rôle. The cells of which it is composed have been regarded as afibrillar plain muscle cells, and similar cells are also present in the afferent arterioles and to a lesser degree in the interlobular arteries. By appropriate staining granules can be demonstrated in some of these cells. The granules are scanty in man, much more abundant in the superficial layers of the cortex in the mouse and rabbit. All of these elements, *Polkissen*, afibrillar cells, granular cells and macula densa, together constitute the juxtaglomerular apparatus. An excellent account of the structure was published by Zimmermann[13] in 1933.

Goormaghtigh[6] has observed hypertrophy and hyperplasia of the afibrillar cells in dogs and rabbits in whom renal ischæmia with accompanying hypertension was produced experimentally. At the same time there was a marked increase in the granular content of these cells not only in the superficial layer but throughout the entire cortex. Graef and others have confirmed these results in animals. Observations on the granular content of the juxtaglomerular cells are so far disappointing in human material, partly because immediate and perfect fixation is necessary for demonstration of the granules.

At the present time there is no proof that the juxtaglomerular apparatus is directly connected with regulation of the blood pressure or even with controlling the blood flow through the

kidney, but the evidence is at least suggestive, and for this reason the apparatus is worthy of careful study in cases of pyelonephritis with hypertension. In my own material I have found the juxtaglomerular apparatus normal in size in many cases of hypertension, whilst, on the other hand, one patient with neither hypertension nor pyelonephritis showed extreme enlargement of this structure.

It is evident that much water has flowed under the bridge since pyelonephritis was regarded as a synonym for pyelitis or for a suppurative lesion of the kidney. Not only may it develop into a form of chronic Bright's disease with renal insufficiency, but it may apparently act as the structural basis of arterial hypertension. The significant frequency of the relation between pyelonephritis and hypertension and the mechanism of the hypertension are still matters demanding further study.

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RÉSUMÉ

Deux nouvelles idées d'importance fondamentale se sont ajoutées aux concepts classiques de la pyélonéphrite: d'abord, le concept d'un rein atrophique et contracté s'accompagnant d'insuffisance rénale, et ensuite, le fait que la pyélonéphrite entraîne souvent l'hypertension artérielle. Le streptocoque, le staphylocoque et le colibacille sont les agents microbiens habituels; les voies sanguine et urinaire sont toutes deux admises. La pyélonéphrite est avant tout l'inflammation du tissu interstitiel du rein. La cicatrice de la pyélonéphrite est foncée et a la forme de la lettre U. Les formes chroniques commencent à peine à être étudiées. Des changements importants sont observés au niveau des tubules, des artères et des glomérules. Le cylindre colloide est fréquent. L'insuffisance rénale est la règle. C'est, en somme, l'image de la maladie de Bright chronique. Le rein ischémique est à la base de l'hypertension artérielle (Goldblatt); or, nous retrouvons ce rein dans la pyelonéphrite chronique. Dans les cas unilatéraux, la néphrectomie est à envisager. Enfin, reste le rôle encore mal connu que joue l'appareil juxta-glomérulaire, appareil ressemblant au glomus et qui réglerait la circulations rénale. On connait davantage les inconnues du chapitre de la pyélonéphrite mais il reste encore beaucoup à étudier.

JEAN SAUCIER

ACUTE PNEUMONITIS — AN ATYPICAL BRONCHOPNEUMONIA OF VIRUS ORIGIN

BY J. MARKHAM, CAPTAIN R.C.A.M.C.

DURING the last winter an opportunity has presented itself to study and observe all cases of acute respiratory infections admitted to the wards of the Fort Osborne Military Hospital.

Our attention has been focussed upon a particular type of pneumonia which differs in many respects from the more common form of lobar pneumonia caused by the pneumococcus, and bronchopneumonia due to *S. hæmolyticus*, staphylococcus, and other usual well known causes.

This disease entity, for such we believe it is, has appeared or has been recognized with increasing frequency in our hospital, chiefly because the diagnosis of "influenza", "grippe" or "P.U.O." has not been acceptable to us as an adequate explanation for the clinical appearance and course of patients we have observed. This has been rather forcefully pointed out when one considers that, of the last 15 patients admitted to hospital with a diagnosis of "influenza", 14 were subsequently found to be suffering from pneumonia. That this type of pulmonary infection, characterized by fever, cough and malaise, and diagnosed "flu", is in reality a particular type of pneumonia is becoming increasingly evident. A survey of the literature in the past few years reveals an increasing number of reports on this type of pulmonary infection and though designated by various terms, such as atypical pneumonia, bronchopneumonia of unknown etiology, virus pneumonia, acute pneumonitis, the clinical description and laboratory findings of these authors shows no significant dissimilarity.

General Clinical Characteristics

There would not seem to be any well defined clinical syndrome to characterize the disease, but certain features are sufficiently constant to make one suspicious of its existence. What is most significant is that, with a minimum or absence of clinical findings, extensive parenchymal changes are observed radiologically. In a few cases parenchymal changes were not demonstrated, either clinically or radiologically, but the general picture was so similar to those with demonstrable involvement that in all likelihood if oblique plates had been taken, obscure areas of pneumonitis could have been found.

Our cases can be roughly divided into three groups: (1) In this, smaller, group, the patient does not appear or feel sick and often wonders why he is in hospital. We have seen several such men who were taken off draft because of the finding of râles in the chest on routine examination. (2) The largest proportion consists of those patients who feel "just miserable" with headache, malaise and a dry, hacking cough. (3) A small number appear acutely ill, slightly cyanosed, with high fever, occasional rigors and moderate dyspnœa.

Here an enumeration of significant clinical data may serve to give a clearer picture of the disease: (1) *Seasonal incidence* would seem to conform to the general increase in respiratory diseases during the winter and spring months. (2) *Age-incidence:* most of our cases have occurred in robust healthy young men in the 20-30 group, which is only to be expected in dealing with military personnel, although no age-group would appear to be immune, and in the older patients the disease is often seen in more severe form. (3) That there is evidence for the communicability of the disease was found in a small group of 5 cases all living in one barrack room, whose bunks were quite close together. It is interesting that these 5 cases were admitted to hospital over a period of three and a half weeks, suggesting that the incubation period may be quite protracted. This is borne out by the evidence presented by other workers who place this period at from 7 to 15 days. (4) The average duration of symptoms prior to admission was 6 days, the shortest 1 day, the longest 3 weeks. (5) *Symptoms:* malaise was by far the most common, and all patients suffered from this in varying degrees at one time. Headache and generalized muscular pains were noted in approximately 80 per cent of cases. *Cough* was present in all patients who subsequently showed radiographic changes. Thirty per cent of patients had *non*-productive cough and, on the average, did not develop sputum until 3 days after admission. In this group a few never developed productive cough. Only two patients had blood tinged sputum at any time, and it was not at all typical of the rusty or prune juice sputum of lobar pneumonia. *Pleural pain:* this was observed in only three cases, of transient duration, and only *one* was found to have an audible pleural friction rub.

Clinical Findings

Of 65 patients 28 had no demonstrable clinical findings with reference to the chest on admission, 95 per cent had however, radiological evidence of pneumonitis, 5 per cent had no changes on x-ray but within 6 days had well marked parenchymal infiltrative changes. All these cases in the latter group were only sick 2 to 3 days prior to admission.

Fever.—Temperature ranged between 99 and 104° on admission. Fever persisted on the average for 9 days, the shortest 3 days, the longest 17 days. It was generally irregular and a secondary rise was often observed after an initial fall and period of afebrility for 24 to 48 hours. Fever generally subsided by lysis and never by crisis.

Physical signs.—As noted, 28 patients had no physical signs on admission as far as the chest was concerned. The rest showed usually suppressed breath sounds and a few fine crackling râles. These were in no way commensurate with the extensive radiological findings and no cases were observed with typical signs of extensive consolidation. Bronchial breathing itself was of rare occurrence.

No significant infection of the nasopharynx or sinuses was observed although general reddening was common. Tachycardia was not uncommon and generally followed the temperature record. Herpes was singularly uncommon and seen only in a small percentage of cases. Cyanosis was infrequently observed and confined to two patients of the small group who really appeared acutely ill. Dyspnœa was extremely uncommon and again confined to the seriously ill group. Vomiting was not usual and was, if present, associated with severe headache. Pleural involvement was observed in only three cases.

No unusual cardiac signs were observed other than tachycardia. In the C.N.S. only one case of meningismus was observed, associated with extensive involvement of an upper lobe. L.P. was negative. Only transient albuminuria was observed in a few cases but casts or red blood cells were not seen. Anæmia was not observed. Jaundice not seen. One case with lesions typical of erythema multiforme with mucous membrane involvement was observed.

The white blood cells average 10,000, varied 5,000 to 13,000 with slight increase in polymorphonuclears. The sedimentation rate was usually elevated to an average of 25 mm. per hour. Sputum was usually scanty or absent at onset. It was mucoid in character if present and later mucopurulent or continuing to be scanty or mucoid. In no cases of this series were pneumococci isolated by typing or cultural methods, nor were hæmolytic streptococcus or staphylococcus found. Usually cultures yielded occasional *S. viridans,* Gram-negative bacilli, micrococci, etc., in fact the usual flora found in the respiratory tract of healthy individuals. Blood cultures were invariably sterile.

The average stay in hospital of all cases was 22 days, the shortest 14 days, the longest 65 days. All patients were hospitalized till clinically and radiologically free of parenchymal changes in lungs: 30 per cent were clear in 14 days; 50 per cent were clear in 18 days; 15 per cent clear in 3 weeks; 5 per cent persisted for 7 to 8 weeks. In a small group of cases classified in the "seriously ill" group high fever with repeated chills, extensive pulmonary involvement—often migratory—were observed and usually had a prolonged and slow convalescence.

Course in hospital.—Although generally uncomfortable for the first few days in hospital most patients were feeling fairly well, but cough was always a troublesome feature despite their apparent well-being. Fever generally subsided by lysis, and accompanied the general improvement in the patient's condition. Most patients appeared remarkably well and much more so than the extent of their pulmonary infection would lead one to believe. Usually clinical signs during the illness on physical examination continued to be obscure in many instances. A number never presented any demonstrable signs, but on the other hand, a small number had quite evident clinical signs, yet no radiological evidence of pneumonitis.

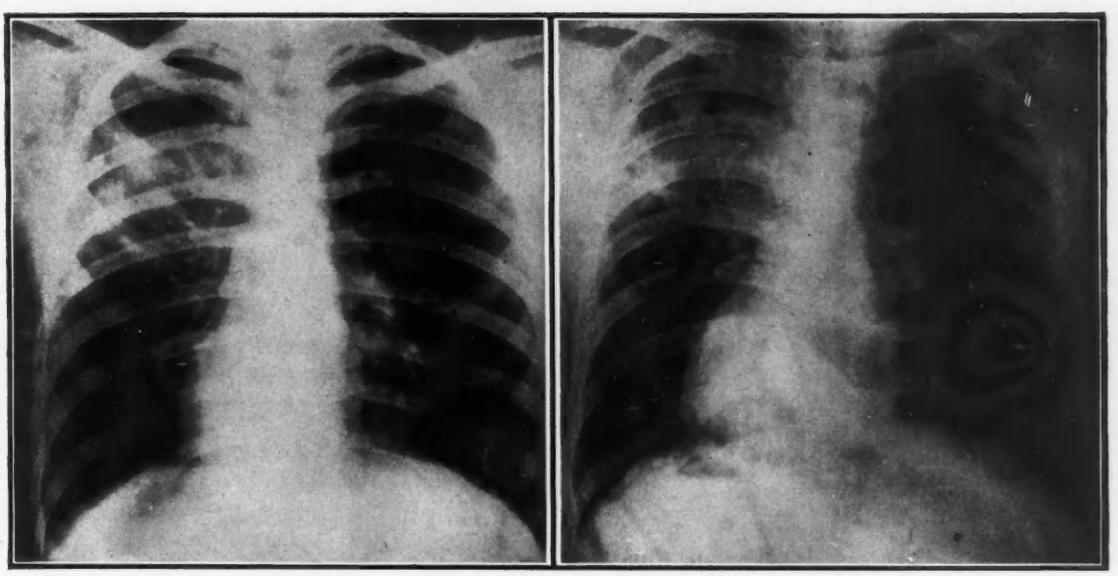

Fig. 1 **Fig. 2**

These two illustrations demonstrate the striking discrepancy between x-ray and clinical findings in this type of pneumonitis. In spite of the extensive x-ray evidence of disease no signs were detectable on physical examination.

TREATMENT

In caring for these patients we were immediately impressed by the complete lack of response to chemotherapy. It had no effect whatsoever on temperature response or general condition of patient. In a small group, we have treated alternate cases with chemotherapy and symptomatically. There is no demonstrable difference in the general response, in fact, those who did not have dagenan or sulfathiazole were

spared the nausea and malaise often induced by the drug. It might also be noted that dagenan or sulfathiazole and sulfanilamide were all equally ineffectual.

Radiological studies. — As previously noted, the changes seen in the lung parenchyma are far out of proportion to the clinical signs. The lesion commonly takes the form of a spreading infiltrative change from the hilus towards the lung periphery. The involvement is not usually lobar in distribution nor is it as dense as seen in the usual consolidation of pneumococcus pneumonia. Rather the changes are mottled in appearance, affecting a portion of one lobe or even involvement of one or more lobes at the same time in a patchy distribution. Involvement of the lower lobes was a little more common than any other distribution but lesions in the upper lobes are frequently seen and, if small and circumscribed as they occasionally are, lead to a diagnosis on purely radiological basis of pulmonary tuberculosis. This is particularly true in the lesions which persist for a long time as in a few of the cases, and frequently the radiologist will report "suspicious" tuberculous process in those cases which fail to clear in a period of 2 to 3 weeks. Indeed when one views the plates, even the diffuse involvement of an upper lobe looks very much like a tuberculous bronchopneumonia (in the absence of a clinical history). One gets the opinion from examining numbers of plates that the lesions are centrally placed within the parenchyma, which may account for the scarcity of physical signs on examination. No residual signs, such as pleural thickening, obliteration of the costophrenic angle, etc., have been observed.

The question is frequently asked, is this a new disease or have we failed to recognize it in the past? Undoubtedly we have observed many cases of "flu" who followed a very similar course and in the absence of definite objective findings were not suspected of having pulmonary involvement, and consequently, infrequently x-rayed. The frequently heard term "post influenzal toxæmia" and similar vague remarks are probably only indications that the physician has failed to establish the true diagnosis. This is of course not inexcusable when one considers that 10 of our group never showed clinical signs during the whole course of their illness despite definite radiological evidence of pneumonitis.

The increasing number of reports of this type of pulmonary infection would indicate that more frequent and generous use of radiographic films in cases of vague respiratory illnesses is disclosing a hitherto unrecognized number of such cases. Other workers point out that this disease has not been observed concomitantly with epidemics or pandemics of "influenza" reported in the past, nor have we, so far, associated it with any reported epidemics of "flu" among the civilian population. Rather it seems to occur with increasing frequency during the period at which most respiratory diseases show a peak rise in the winter and spring months.

It may be asked, is not this pneumonitis caused by organisms isolated from the sputum? Against this is the fact that organisms isolated by cultural methods are those generally found in the flora of the respiratory tract in perfectly healthy individuals. A small group of analysis has been compared with the sputum from patients in the surgical ward who are, in general, free of any significant respiratory disease as far as is possible to tell, yet no significant variation was noted.

However, it would appear, at least on clinical grounds, to present many of the features of a virus disease. That it is communicable is well substantiated by many workers, although we have so far accumulated only scanty evidence on this phase of the disease. The work of Gallagher and others who have reported definite institutional outbreaks is quite convincing. Certain more or less constant clinical features are, we believe, sufficiently distinctive to identify this as a definite disease entity: (1) As noted, cough is present in 100 per cent of cases. (2) Leucocytosis is not found, the highest white blood count in our group was 13,000. (3) On the negative side, the usual absence of chills, pleural pain or rusty sputum is a distinguishing feature from other types of pneumonia encountered.

The total ineffectiveness of chemotherapy has been observed by all who have studied the disease and certainly could be considered a distinguishing feature. In one case however, following a secondary rise in temperature after a period of six days afebrile, *S. hæmolyticus* was found which previously was not isolated in the sputum. Here chemotherapy did seem to be effective in producing a rapid fall in temperature.

This disease entity, for such we believe it is, becomes a particular problem in dealing with

members of the forces. In retrospect, we can recall two cases who had parenchymal involvement which did not clear after two months and whom we boarded out. I believe we erred in this respect, for, in the light of present knowledge, all these cases will clear if given a sufficient length of time. In these, of course, there was no underlying disease such as bronchiectatic change and no evidence was present to suggest this, nor did lipiodol examination reveal any abnormal change. It may be said, and not without confirmation, that men have been boarded out before an adequate period of hospitalization and observation has been carried out because of the extreme slowness of the lesion in disappearing. We believe that, given a sufficient length of time, all these lesions will clear and leave no residue, although it is hard to say at present what these men will develop in five years' time, especially those who have cleared slowly, but we have seen no recurrence in any of our patients whom we have been able to contact during the time this investigation was being carried out.

Again, the recognition of this disease as something more serious than an attack of "flu" is of considerable import. If cases are not properly diagnosed and hospitalized for an adequate length of time and not given sufficient convalescence, then Medical Officers will encounter a great number of men who present many of the symptoms of the effort syndrome.

It has been our policy at the Fort Osborne Military Hospital that all men who have had this disease are boarded at the end of their hospitalization period and given at least 3 weeks' sick furlough, or longer if indicated in special cases. Men are instructed that this is not 3 weeks ordinary leave but actually a convalescent period in which they may gradually recover from the effects of their illness. Additional rest, fresh air, and nutritious food are indicated to these men as essential if they are to feel well when they return to duty. All patients are examined at the end of their sick furlough at the hospital when possible. A careful physical examination, weight record, general enquiry, etc., is carried out. Sedimentation rates are usually done and radiographic films taken if indicated. In this check up we have seen no case with recurrence of signs in chest on clinical examination. Sedimentation rates are almost invariably within normal limits and in general they present no evidence of active infection unless some intercurrent illness has occurred during their convalescent period.

CONCLUSIONS

Clinical and laboratory data have been reported on 65 cases of an acute pulmonary infection observed in the Fort Osborne Military Hospital in the past six months.

[NOTE: Since the completion of this ms., 110 cases of this type of pneumonia have been reviewed, making a total of 175 on which clinical observations have been carried out. They presented no essential differences from those reported in this paper.]

Certain features have been emphasized and the difficulty in making a proper diagnosis without radiographic films of the chest is pointed out.

Our cases have been relatively benign, characterized by obscurity of physical signs, minimal signs of prostration, all in the presence of extensive parenchymal changes in the lung.

The importance of a proper diagnosis, especially among soldiers has been stressed.

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The use of a clear glass-like plastic rod in dental and surgical instruments has suggested a solution to a shell inspection problem in one of Canada's large wartime shell filling plants. This crystal clear plastic has been found of considerable value because of its ability to transmit cold light and concentrate it in the tip of an instrument at the point where it is most needed. It is a far cry from the operating room to the production line of a shell filling plant but cold light is also needed for shell inspection since the inside of a shell loaded with high explosives cannot be inspected with a light that generates heat.—*C-I-L Oval*, June, 1942.

LIVER NECROSIS FOLLOWING BURNS*

BY JOHN D. DUFFIN, M.D.

Toronto

ATTENTION was first directed to a liver lesion associated with cases of burns when in 1938 Wilson, MacGregor and Stewart[1] in Edinburgh, reported severe liver necrosis in 13 of 33 patients dying after burns. Each of the cases had suffered second or third degree burns involving varying-sized areas of the body surface, and had survived for from two to twelve days. In many of the cases jaundice had developed as early as the third day and had persisted until death. The livers at autopsy were found to be slightly enlarged, soft, greasy, and friable. Microscopically, focal areas of necrosis involving individual lobules were found, the necrotic areas being central and mid-zonal in distribution, with viable liver cells around the portal areas.

Within the next few months Belt[2] independently reported four cases which had come to his attention while working in the Department of Pathology at the University of Toronto. Belt's cases had suffered second and third degree burns, and death in all cases had followed on the third or fourth day after the injury, one of the patients developing jaundice. At autopsy the lesions in the liver were found to be indistinguishable from those encountered in cases of yellow fever. The livers were described as being slightly enlarged, greasy, and pale yellow in colour. Microscopically, as in the cases of Wilson, MacGregor and Stewart, there was a focal necrosis and varying degrees of fatty degeneration. In addition, Councilman bodies were a prominent feature, and intranuclear inclusions were demonstrated in all cases. This combination of focal necrosis, Councilman bodies, and intranuclear inclusions had hitherto been described in two disease entities only, yellow fever and Rift Valley fever, both virus diseases.

Within the past year evidence of impairment of liver function in patients recovering from burns has been reported by Wolff, Elkinton and Rhoads.[3] These workers found that between the third and tenth days following the burn there was elevation of blood bilirubin, impairment of glycogenesis and hippuric acid synthesis, and a lowered blood prothrombin level, all pointing to a damaged liver.

Since the publication of Belt's paper we had been on the lookout for a burn case which showed liver damage, and in April, 1941, such a one was encountered.

CLINICAL HISTORY

The patient was a 33 year old female who, in a fire at home, had received second and third degree burns of the face, neck, shoulders, arms and hands, covering in all an area of 180 square inches (approximately one-twelfth of the body surface). She was admitted at once to the Toronto General Hospital where sedatives and continuous intravenous saline and glucose were given and the burns were tanned. On the following day the urine showed 2 + albumin. On the second day slight icterus developed, which rapidly progressed to deep jaundice, and the liver became palpable. By the fourth day there was a strongly positive and biphasic van den Bergh reaction (25 units) and a non-protein nitrogen of 78 mg. per cent. The patient seemed to improve and by the eighth day the blood bilirubin had dropped to 16 units and the non-protein nitrogen to normal, while the liver was no longer palpable. On this day, however, signs of pneumonia developed, and death occurred on the tenth day following the burns.

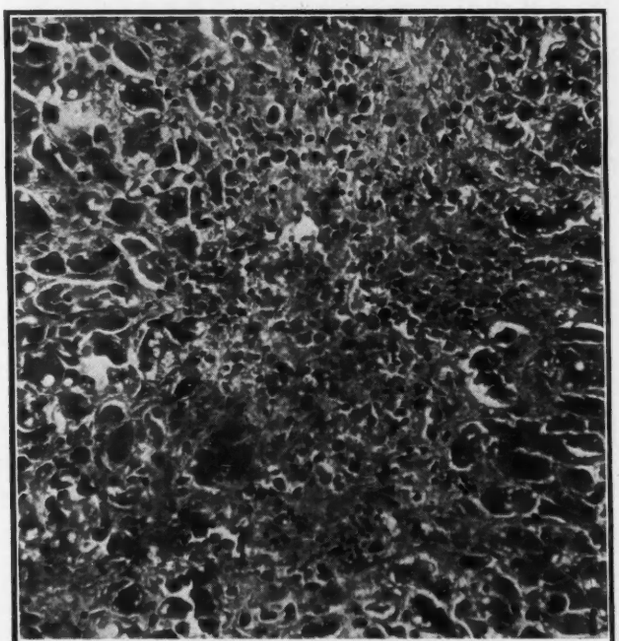
Autopsy.—The autopsy disclosed tanned burns in the situations noted above, with granulating bases and without evidence of infection. The skin, sclerae and viscera were moderately jaundiced. The lungs showed a purulent bronchitis and patchy small areas of consolidation, which proved to be areas of staphylococcal pneumonia. Multiple small foci of suppuration were present in the lungs, kidneys and myocardium. The liver weighed 1,200 grams, being perhaps slightly smaller than normal. It was quite flabby, greasy and friable. The capsular surface, which was smooth and without wrinkling, showed a yellowish mottling, while the cut surface presented tiny dark reddish areas standing out on a bright yellow background.

Microscopically, the liver showed an intense central and mid-zonal necrosis (Fig. 1). At the periphery of the lobules there was considerable interstitial œdema and the liver cells here, although viable, exhibited loss of uniform arrangement and fatty degeneration, while the peripheral canaliculi of many of the liver cords were filled with green-brown bile casts. The picture differed from that of acute yellow atrophy in that the necrosis affected portions of the individual lobule and not the whole of several adjacent lobules. Scattered throughout the liver, numerous fading-out and some well preserved Councilman bodies were visible. These took the form of vacuolated, hyaline-like structures, made up of the altered cytoplasm of one or more cells, and in some instances situated within the cytoplasm of individual cells. Occasional rounded, brightly eosinophilic, intranuclear bodies, of the group classed by Cowdry,[4] as type A inclusions, were seen. These varied in size from 3 to 7 microns, were usually centrally situated within the nucleus, and were surrounded by a clear halo of variable thickness. There was but little polymorphonuclear leucocytic response to the necrosis.

* Department of Pathology, University of Toronto, and the Toronto General Hospital.

COMMENT

Death in this case was due to a combination of liver necrosis, which was in some manner causally related to the burning, and staphylococcal pneumonia and pyæmia. The liver lesions were indistinguishable from those presented by Belt's cases, sections from three of which we have had the opportunity of studying (Fig. 2). They were likewise indistinguishable from the lesions seen in the livers collected by the late Professor Klotz[5] from a large series of human beings and monkeys dying of yellow fever. The changes in the liver in Rift Valley fever, also a virus disease, are similar to those of yellow fever, and many features of Daubney and Hudson's[6] and also Findlay's[7] descriptions of these changes might equally well have been applied to Belt's and our burn cases. The finding of intranuclear inclusions following burns supports the concept that inclusions of this type may be produced by a multiplicity of agents, of which viruses form only one group.



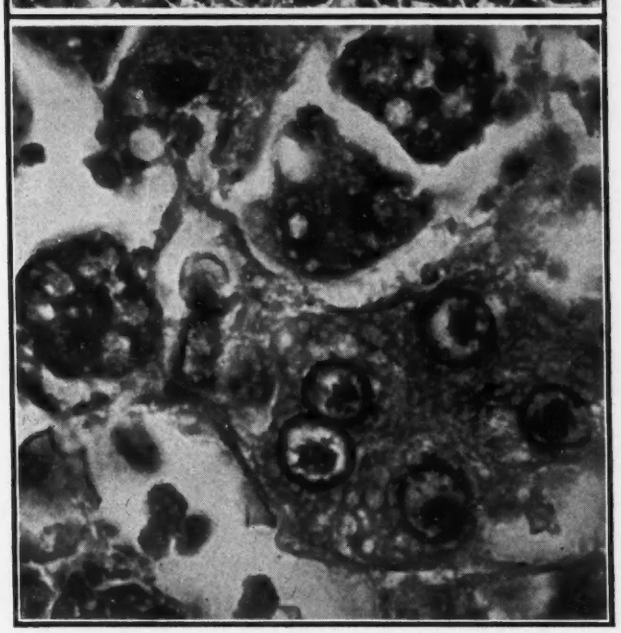


Fig. 1.—Necrosis of liver. Phloxine-methylene blue. x50. **Fig. 2.**—Five nuclei containing inclusions are seen in the right lower quadrant, with Councilman bodies above and to the left. (Belt's case 1). H. and E. x1250.

The actual cause of liver necrosis in cases of burns is obscure, but it is difficult to conceive of its being due to anything other than a circulating toxin, elaborated either in the burned tissue, or elsewhere as a result of the presence of burned tissue. Despite studies by numerous workers, however, the exact nature of this hypothetical agent is still undetermined.

SUMMARY

A case is reported in which jaundice and signs of severe liver damage developed following burns. Advanced liver necrosis was found. The lesions were indistinguishable from those encountered in the livers of previously reported cases of burns and of yellow fever, and closely resembled those described as being present in Rift Valley fever.

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TREATMENT OF FRACTURES OF THE SHAFT OF THE FEMUR*

T. A. ROBINSON

Toronto

THE femur is the longest and strongest bone of the skeleton. Structurally, it is almost cylindrical, except near the trochanters and the condyles. The wall of the cylinder has its greatest thickness and density in the middle portion of the shaft. The medullary cavity is largest in this area as well. In the upper and lower thirds of the shaft the compact bone becomes thinner, the medullary cavity becomes filled with cancellous tissue, while at the trochanters and condyles, the compact bone is thinned out till it becomes a mere shell. The arrangement of the cancellous tissue in the upper portion of the bone is designed to withstand the strain coming from above, downwards, and below, upwards, in the shaft of the femur. These cancellæ are further strengthened by a "wedge-shaped arrangement"[1] which begins at the articular surface of the head and comes down through the neck and interlaces with the layers coming up from the shaft. As the neck and shaft unite at an angle of about 135°, and as the shaft is convex when viewed in the lateral position, it is obvious that many different lines of strain must meet in the region of the trochanters. These lines of strain are further complicated by the neck inclining forward from the shaft, and by the medial condyle being slightly lower than the lateral condyle, and further, by the fact that the lower ends of the femur are in closer apposition than the heads of the bones, and also, that the femur swings as a pendulum from the acetabulum, having an almost universal range of movement at this joint.

Modern transportation in high-speed vehicles wherein the victim may be projected violently against a fixed object, is the cause of most of the fractures of the femur. Falling to the ground or pavement or being caught in wreckage of buildings and the bursting of shells all contribute to subjecting the femur to terrific strain. As a result of altered momentum and the application of direct or indirect violence, many sorts of fracture may be produced. At the intertrochanteric region, due to the angles of union between the neck and the shaft, the lines of force come from many directions, producing fractures, and even the lesser trochanter may be sheared off. When the patient hits the pavement or floor, further comminution takes place. Muscle pull may raise the trochanter till the angle between the neck and shaft may be 90° or less. The muscle pull of the gluteals and obturator, aided by gravity, produces the external rotation that is characteristic of fractures in this region.

In fractures of the upper and middle thirds of the shaft, the deformity is often very marked, as the powerful thigh muscles exert a tremendous pull on the fragments. Due to the type of violence, fractures in this area may be transverse, spiral, oblique, multiple or comminuted, and any combination of these may be present in the same individual. In some types, where the force was indirect, a segment of the shaft may be forced from its position and it may be rotated 180° on its long axis. In this region the upper fragment is usually flexed on the thigh, abducted and externally rotated, whereas the distal fragment is drawn upwards by the thigh muscles and medialwards by the adductor group.

Fractures of the lower third of the bone are more apt to be due to direct violence, and here, any of the types before mentioned may be encountered, depending on the severity of the force and the muscle pull. The closer the fracture is to the articular surface of the condyles, the more difficult it is to control the lower fragment, because the powerful gastrocnemius flexes the knee, thereby pulling the upper end of the lower fragment backwards and causing it to lie posterior to the lower end of the upper fragment. Occasionally the situation is complicated by the line of fracture running into the joint, or the condyles may be forced asunder, if the fracture runs into the intercondyloid notch. Where the integrity of the joint is involved the weight-bearing surfaces may be altered in their relative positions to each other and serious derangement of the mobility and usefulness of the joint may supervene. In genu valgum, if fracture occurs and the condyles become rotated, a terrible result

* A paper read at the meeting of the Ontario Medical Association at Windsor, Ont., in May, 1942.

would persist unless the rotation was completely corrected.

In any fracture of the femur where there is much displacement of the fragments, there is always a great deal of damage to the surrounding soft tissues. The extravasations of blood into the tissues may be extensive. Due to the jagged ends of the bone, considerable laceration of muscles, blood vessels and nerves may take place, or the vessels and nerves may be completely severed. All these complications must be borne in mind and looked for in the routine examination of the injured limb. It is well to remember that fat-embolism is a sequel of fracture of the femur more frequently than in fracture of any other bone of the body.

The fractures may be compounded either from within, *i.e.*, where the jagged ends of the bones are forced through the skin, or from without, *i.e.*, where the leg has been crushed by a heavy weight or where a missile has entered; the missile, no doubt, carries with it potentially infected material. This type has all the difficulties of simple fracture and to it is added all the horrors of infection in the soft tissues and bone, together with the immediate probabilities of gas gangrene and tetanus.

The diagnosis of fracture is made by the ordinary procedures. The history of violence is obtained. There are usually the obvious signs of injury and disability. Examination shows unnatural position of the leg and by comparison there will likely be more or less shortening. Crepitus may be elicited. Be sure to examine the distal palpable arteries and observe the sensory and motor nerve integrity. Then an x-ray examination is obtained as soon as the patient's general condition will permit. The x-ray plates must show the fragments in the antero-posterior and lateral position. Failure to observe these rules may cause severe criticism and heartache later on. The findings obtained may be at times quite startling.

TREATMENT

A Thomas splint should be part of the standard equipment of every doctor who may be called upon to treat accident surgery. In fractures of the femur, this splint can be applied for the comfort of the patient in transferring him to bed or to hospital. In many instances it may be used through the remaining treatment of the injury. A knowledge of the proper method of applying a Buck's extension is fundamental—a roll of sash cord, a few pulleys obtained at the local 5 and 10 cent store, and some overhead apparatus of the Balkan frame type—these constitute the essentials, and these may be all that are needed for the management and care of the patient. It is well to have different sizes and lengths of Thomas' splints. In applying the Buck's extension, be sure that there is no pressure on the external peroneal nerve, the patella, or the lower portion of the anterior surface of the tibia. Have a stirrup wide enough to prevent pressure on the malleoli. Apply a biased flannel bandage in two sections so as to leave the neck of the fibula free from pressure and open for inspection.

In any type of fracture of the femur it is absolutely essential to apply the traction at once, whether Buck's extension or skeletal type. The traction must be put on as soon as possible after the injury, before contracture of the muscles takes place. The weight applied must be adequate to restore the length of the bone. It is necessary to give sufficient sedative to control pain while the extension is being applied. Occasionally a few whiffs of chloroform at the onset will produce real muscular relaxation and permit the shortening to be overcome almost immediately. Apply an elastoplast strip to the foot and suspend this from the overhead frame, using about 1 pound of weight. This will prevent foot-drop from disuse, and if properly applied, will keep the ankle at a right angle and will also prevent the formation of hallux rigidus. Apply this pull in such a way that it will maintain proper rotation of the leg. If this device fails, a light plaster boot may be applied and suspended as described.

In intertrochanteric fractures apply the Thomas splint and Buck's extension. Abduct the leg about 30 to 35° and flex the thigh on the pelvis. Elevate the foot of the bed 12 to 15 inches and apply 20 to 25 lbs. weight to overcome the shortening. In about two days after the application of the splint and traction have portable x-ray plates made to see if the shortening has been overcome and the deformity corrected. Weight may be added or reduced as required. Then leave the patient thus for about eight weeks. Thus treated, this type of fracture almost always unites. Even the separated lesser trochanter will usually become firmly adherent, particularly if there has been sufficient flexion of the thigh on the pelvis. Many surgeons like to

insert a nail in this type of fracture. They feel that the "internal fixation" shortens the patient's term in bed and permits more mobility, thereby lessening the tendency to pulmonary complications. Sometimes, though, the trochanter may be greatly comminuted. In such a case the nail will do very little good. No matter which type of treatment is chosen, union takes place.

In fractures of the upper and middle thirds of the femur, apply the Buck's extension and Thomas splint, with sufficient weight—from 40 to 45 lbs. Elevate the foot of the bed from 15 to 18 inches. This gives sufficient counter traction. The weight should be applied as soon as the adhesive is firmly adherent to the skin. This amount of weight will usually restore the length of the bone in about 48 hours. At this time, check positions and alignment by portable x-ray. Manipulate the fragments and endeavour to obtain crepitus. If this x-ray is not taken, *i.e.*, when the length should be restored, one may find in 8 or 10 weeks that there is no sign of union; the bone is ununited due to lack of contact. Having taken the x-ray then, and having learned that length is restored, but that there is no bony contact, it is often possible to devise good apposition of the fragments in the following manner. Leave the patient in the extension, in bed. Bring the portable x-ray machine to the bedside. Have an anæsthetist administer pentothal intravenously, or chloroform by inhalation, then, under the fluoroscope, manipulate the fragments into good position and check subsequently by x-ray to be sure that the fragments have remained in contact and alignment. This manœuvre has been done repeatedly, as late even as ten days following the accident, and satisfactory results have been obtained.

When it is impossible to restore the length of the bone by skin traction, skeletal traction may be used. The insertion of the Kirchner wire or ice-tongs must be done with care and aseptic precautions. If, however, the wire is inserted improperly, the length may be restored but the line of traction may be incorrect; then the fragments will not approximate, and thus skin or skeletal traction may not produce the desired results.

When the above methods have failed to obtain proper apposition of the fragments, then open operation must be resorted to, particularly in the bursting type of fracture where a portion of the segment has been rotated. Often no amount of traction will suffice to give proper adjustment and apposition of the fragments. The leg must be operated upon, using a rigid aseptic technique, the fragments replaced and secured in place by screws or an internal splint. It is well to leave some traction on the leg. Then apply a plaster cast from the crest of the ilium to the toe. Leave this *in situ* till union has been confirmed by x-ray examination.

In a young child, with a fracture in the middle or upper third of the femur, he may be suspended, using just sufficient weight to raise the buttocks from the bed. Check the position with the portable x -ray to be sure of bony contact. There is practically always union if this precaution is observed.

In fractures of the lower third due to the pull of the gastrocnemius the upper end of the lower fragment is pulled backwards and lodges behind the lower end of the upper fragment. Skeletal traction should be used at once. Insert the wire, if possible, through the compact bone of the lower end of the femur, otherwise it may drift into the joint and produce a disablement of the knee. Endeavour to insert the wire a little nearer the anterior surface of the bone so as to elevate the upper end of the lower fragment. Recently, it has been found that if the Kirchner wire is inserted through, or just distal to the tubercle of the tibia, the control of the lower fragment of the fractured femur is better than when the wire is inserted through the lower fragment. The pull of the knee joint does not seem to produce any untoward results. Place the leg on a double inclined plane and apply 10 to 15 lbs. weight. Check the position by x-ray. Leave the extension *in situ* until union is adequate. If the fracture is close to the condyles it may be advisable to insert the Kirchner wire in the upper end of the tibia at the tubercle. This will give adequate traction, as a rule, and good position of the fractured femur may thus be obtained.

In fractures of the femur, bony contact must be obtained and maintained, and, failing this, open operation must be adopted. Use either a metal screw or plate and put the leg in a cast and leave it until union is adequate. In some patients, although the bones have been held in position, union may not take place. These cases may require open operation and autogenous bone graft, to stimulate bone production.

In compound fractures, the worry is infection, both immediate and remote. The patient should be taken to the operating room and given either a spinal or general anæsthetic, and a most careful débridement carried out. The skin should be shaved and cleaned and painted with iodine, then the wound opened up and irrigated with normal saline, until all the foreign material and dead tissue, including blood clots, are removed, and all sinuses explored. No strong antiseptics should be inserted in the soft tissues. The skin edges and muscles and fascia should be clipped off till they bleed, then the wound packed with sulfathiazole powder, and "strips of vaseline gauze"[2] inserted to keep the skin edges apart. The leg is then put in a Thomas splint; the fragments can be locked and a Kirchner wire inserted to keep the length restored. If the fragments cannot be put in apposition and held thus, metal screws or Lane plates should be used, always remembering that these are probably to be removed as soon as union has been secured. In this type too, powdered sulfathiazole is packed into the wounds, with superimposed vaseline strips. Then the splint is applied. The patient is then given adequate sulfathiazole orally or intravenously to control any infection. The blood is to be checked at frequent intervals so that proper concentration of the drug in the blood can be maintained.

In patients with delayed union, limitation of movement of the knee joint may become a real disability. Early movement of the joint is to be desired. If the leg is not encased in plaster be sure that the patella is moved lateralwards and downwards every few days. This prevents it from being frozen to the femur and this simple observation may prevent the knee from being fixed later on. If forceful effort has to be resorted to, be careful not to refracture the femur in an endeavour to flex the knee. Usually, the patient's own effort at movement is most beneficial. If 70° flexion can be obtained at the knee, a very useful life can be pursued by the patient.

Patients with fracture of the femur require a great deal of supervision. Too much extension may produce prolonged paralysis, due to overstretching of the nerve. Continued pressure on the bony prominences may produce indolent ulcers that take a long time to heal, and then leave painful scars. Pressure on the external peroneal nerve will produce a foot-drop that may require months for recovery. As soon as patients can get out of bed, they should be encouraged to use crutches, so that the injured leg can be put through its normal motions, and early weight-bearing should be insisted upon as soon as union permits. When crutches are discarded, the patient must be instructed that limping is a bad habit and should not be indulged in, unless there is an inch or more of shortening, or there is a partially ankylosed joint.

There is no type of treatment of fracture of the femur that is specific. Each fracture must be treated on its own merits. The procedures adopted should be those that offer the patient the best possible opportunity for restoration of length and good alignment, and the fixation should be applied to secure these results.

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MENINGOCOCCUS INFECTION TREATED WITH SULFONAMIDE DRUGS*

BY DAVID L. KLEIN

Montreal

MENINGOCOCCUS infection still remains a definite war hazard. Occurring sporadically in almost all parts of the world, the disease tends to spread among the civil and military population as the result of overcrowding[1] during war manœuvres. The outbreaks of the disease usually take the form of sharp localized affairs rather than the sweeping pandemics which have been associated with influenza.

The object of this report is to present a critical review of the literature, with an analysis of the cases in regard to response to sulfonamide treatment, with particular reference to the cerebrospinal fluid changes, the temperature reaction, and to condemn the intrathecal route of therapy for meningococcus meningitis.

REVIEW OF THE LITERATURE

Reports from European centres have shown a marked increase in the incidence of this affliction associated with the present hostilities. The

*From the Children's Memorial Hospital, Montreal. Read before the Montreal Clinical Society, February 25, 1942. Abridged from original form.

figures in the following table undoubtedly represent only part of the cases that have occurred in each country since they cannot include the unrecognized forms of the disease which recover spontaneously; and the reporting of contagious diseases to the health authorities is not always complete.

Location	*Cases reported — Year of report*
Great Britain[2]	1,288 cases in 1938. 1,500 in 1939. 12,500 in 1940.
Germany[61]	1,826 cases in 1938. 5,046 in 1939.
Hungary[61]	An average of 52 cases from 1921 to 1928. 395 in 1939.
Yugoslavia[61]	Annually 85 to 155 cases in the previous 12 years. 731 in 1939.
Bulgaria[61]	Less than 50 annually 1934-1936. 669 in 1939.
Canada[59]	180 in 1938. 160 in 1939. 374 in 1940.
Province of Quebec[15A]	31 for 1936. 45 for 1937. 48 for 1938. 51 for 1939. 116 for 1940.
City of Montreal[15B]	8 in 1935. 6 in 1936. 10 in 1937. 5 in 1938. 12 in 1939. 25 in 1940.
United States of America[15C, D]	5,736 (43 states) in 1935, 7,320 (44 states) in 1936. 5,484 (44 states) in 1937, 2,919 (47 states) in 1938. 1,991 (47 states) in 1939, 1,673 (48 states) in 1940.

The figures for Canada do not include the notifications from the North West Territories and the Yukon. The United States of America is the only country showing no increase in the notification of this disease.

Meningococcal infection is not highly communicable,[1] man in general having a marked resistance to it. During the period of overcrowding the meningococcus is passed from one individual to another until it finds a susceptible host who contracts the disease. Carriers are produced in this manner in large numbers. They form the great public health menace for this condition, and consist chiefly of healthy passive carriers in addition to those who have had the disease even in a mild and unrecognizable form. The micro-organisms are spread in the nasopharyngeal secretions and the nasopharynx acts as the portal of entry into the body. There are two theories regarding the spread of the infecting organism from the portal of entry to the meninges. The less commonly held view maintains that the meningococcus penetrates the cribriform plate of the ethmoid. The other holds that the organism first enters the blood stream to produce a bacteriæmia and that the meningitis is a complication of the bacteriæmia.[3, 7, 13]

The disease therefore, in addition to a marked toxæmia, consists of three stages, the initial or nasopharyngeal, the bacteriæmia and the meningitis.[3, 6] It may become arrested in either of the first two stages.[6] This may account for an increase in carriers preceding and during an outbreak and cases of meningococcus bacteriæmia[4, 8, 9] may exist without meningitis for weeks or months, or even years.[5]

The above mentioned reasons make it obvious why one should use the all-embracing term meningococcus infection[4] rather than the too limiting one meningococcus meningitis. The incubation period[1] is often difficult to determine. It is stated to be from 2 to 10 days, commonly 7, but it may be as short as 24 hours especially in the very young infant.

The meningococcus is divided into two main groups, Types I and II.[24] Although one attack usually confers immunity recurrences have been reported.[1]

The introduction of intrathecally administered antimeningococcus serum in 1906 by Flexner marked the first great change in the treatment of this disease.[10] Prior to the advent of serum the general mortality was in the vicinity of 70 to 80 per cent, falling occasionally to 42.5 per cent. Serum gave a corrected mortality of 22.6 to 30.9 per cent. Parallel series treated with and without serum by the same observer showed a marked drop in the death rate only in the serum-treated cases. One serum-treated group gave a corrected mortality of 15.5 per cent. The serum also reduced the mortality in infants under one year of age from 89 per cent and more to 49.6 per cent.

Neal and Jackson[17] in 1927 reported a death rate of 47.8 per cent among patients in the first three months of life treated with antimeningococcus serum intrathecally. They quoted their mortality in the first year of life as 46 per cent.

Herrick[7] in 1918 showed the value of the intravenous administration of the serum. It is interesting to note that 45 per cent of his cases were recognized prior to the development of meningitis, 128 cases treated with serum intraspinally and massive doses of the serum intravenously gave a mortality of 14.8 per cent.

Leslie and De Sanctis[11] held that the intraspinal administration of serum was essential except in the cases of bacteriæmia without meningeal involvement. They advised repeated injections of serum intravenously only in cases of persistant bacteriæmia. They obtained in 75 cases a gross mortality of 20 per cent, a corrected death rate of 16 per cent (possibly 10 per cent). There were no deaths in their last 20 cases.

Hoyne in 1934 strongly condemned and discarded the intrathecal route of therapy.[12] It is his contention that one should treat the patient, not a spinal fluid, and that lumbar puncture may be necessary for diagnostic purposes only. He reported a mortality of 9.2 per cent in a group of 54 patients treated exclusively with meningococcus antitoxin intravenously, and a death rate of 11.7 per cent in 17 infants one year of age and less.

Other observers had also given up the intrathecal route for serum therapy.[19] An injection of serum into the theca may cause an increase in the local irritation[16, 20, 30] with the possible development of adhesions and spinal block.[24] It is quite possible that this dreaded complication may occur in this manner in the susceptible or allergic patient if he be injected with serum intrathecally at a time when an accelerated reaction to serum is prone to develop.

THE CEREBROSPINAL FLUID

A comprehensive study of the cell count and the chemical analysis of the cerebrospinal fluid[14] suggests, theoretically at least, that a patient with meningococcus meningitis treated adequately, and early in the course of the disease does not require the intrathecal administration of serum or sulfonamides. Sulfonamides when given orally or intravenously penetrate into the cerebrospinal fluid, some of them more readily than the others. Antibodies given as serum intravenously to the patient do not readily enter the cerebrospinal fluid. In spite of this, cases treated with serum by intravenous route alone have been reported with a high rate of recovery, but not as consistently as has been the case with sulfonamides. Of course there has often been the difficulty with serum that some cases did not respond as well as others, probably due to the fact that type specific antibodies could not be found for all cases.

Does this mean, then, that curative substances need enter the cerebrospinal fluid in order that this form of meningeal inflammation be treated successfully?

The present status of our knowledge regarding purulent meningitis permits merely the hazard of a guess, not a definite answer. Lessons learned from nature's own reactions under normal and abnormal conditions suggest that intrathecal treatment should be abolished and that our curative substances need not enter the cerebrospinal fluid to be effective for meningitis.

Normal cerebrospinal fluid obtained by lumbar puncture is a clear, freely flowing liquid, containing among other constituents in small amounts no cells, or 5 at the most, per c.mm., 15 to 45 mgm. proteins per 100 c.c. and, obviously, practically no antibodies, which appear to have the properties of pseudoglobulins.[62] This state of affairs is maintained by the protective mechanism of the blood-cerebrospinal fluid barrier against the accumulation of toxic products and of excessive amounts of protein, which would increase the viscosity of the fluid and interfere with its freedom of movement. Where nature requires a viscid fluid she places it there, *e.g.*, the blood, plasma contains approximately 7,000 mgm. of protein per 100 c.c.

In the presence of meningococcus meningitis there occurs some increase in the penetrability of this barrier and there appear in the cerebrospinal fluid thousands of leucocytes per c.mm., chiefly of the polymorphonuclear type, and an increase of protein and antibodies, but not a great deal of the latter. Even in disease the barrier attempts to keep the protein down to a minimum; most cerebrospinal fluids taken at the first lumbar puncture in patients with meningococcus meningitis contain 500 mgm. of protein per 100 c.c. or less. In fact, high cerebrospinal fluid protein levels, over 1,000 mgm. per 100 c.c. are apt to be associated with subarachnoid block. The cellular increase in the fluid in this disease is really tremendous and from this fact together with the comparatively less marked increase in protein one may hazard a guess that it is nature's intention to combat the meningococci in the cerebrospinal fluid with phagocytes in abundance rather than with large quantities of antibodies. The point at issue is whether or not nature unaided can produce in the cerebrospinal fluid sufficient amounts of antibodies to enhance the phagocytic power of the leucocytes. In some cases she has been able to do this, there were survivals from this form of the disease even prior to the advent of serum. Evidently nature was not successful in those who died. It may be possible that the phagocytes may be able to dispose of the micro-organisms in the cerebrospinal fluid if the focus of origin of bacteria elsewhere is eliminated by the curative substance.

Even if we disregard the above theoretical considerations one may feel certain that the modern method of treatment and its epoch-making results justifies the stand against the intrathecal use of serum and sulfonamides until more experimental evidence can outweigh clinical experience.

TREATMENT WITH SULFONAMIDES

The advent of the sulfonamide compounds has raised the question as to whether serum is required in conjunction with these drugs or not. Warning has already been given that the use of serum does not permit the physician to lower his dosage of chemotherapy. It is a well known fact that not all specific sera are equally effective against the meningococcus.

Branham,[16, 18] basing her opinion on the use of sulfapyridine and sulfanilamide, with and without, serum for experimental infections in mice, advocates giving serum in conjunction with these drugs. Others from clinical experience hold that there is no advantage in this use of serum.[21-24, 49] In some quarters it is felt that, while not essential, serum may be used optionally as an adjunct to chemotherapy.[25] There remains the opinion of those who believe that the day of serum has not altogether passed,[26] particularly in its use, for the severe type of this infection,[27] together with sulfonamides. Black and MacKenzie[56] reported 17 cases and quote 9 treated by Coward, making a total of 26 cases with no deaths. Five received sulfapyridine alone, 21 were given serum, intrathecally or intravenously, with the drug. The same dose of sulfapyridine was employed whether serum was used or not. The cases of Reid and Turner,[57] 5 in number, may be added here; they all recovered.

Every form of therapy, sulfonamide or serum, acts as an adjunct to the immunity mechanism of the patient under treatment.[8] The sulfonamides inhibit the growth of the organisms,[63] while the immunological processes of the body destroy the remaining bacteria and neutralize the toxins produced. There is then for each individual a minimum curative dose which unfortunately cannot be determined at the commencement of treatment. Sufficient amounts of sulfonamides should therefore be given to relieve the immunity mechanism of as much burden as possible. It is not safe to give low doses, since this throws too great a burden on the patient's natural resources and may end in disastrous results, the body being unable to cope with the infection.

The drugs in common use have been sulfanilamide and sulfapyridine. Sulfathiazole[29, 58] and sulfadiazine[9] have been used recently with remarkable results in a few series of patients. The administration of sulfonamides is directed towards the obtaining of an adequate blood level of the drugs as quickly as possible. This is done by giving a good loading dose at the commencement of treatment and a proper maintenance dose to keep this level up during the acute phase of the disease. The optimum blood level for sulfanilamide is said to be 10 mgm per cent. For sulfapyridine it is between 5 and 10 mgm. per cent.[55] Banks[23] holds that 3 to 5 mgm. per cent sulfanilamide ought to be obtained in the cerebrospinal fluid within 24 hours of the institution of treatment and maintained at this level for at least three days. Lower levels for sulfapyridine might suffice.

During the early phase of treatment the sodium salt of sulfapyridine, sulfathiazole, or sulfadiazine should be administered intravenously in freshly distilled water to rapidly ensure an adequate blood concentration of the drug; once this has been achieved and the condition permits it, a change to the oral route may be made, using sulfanilamide or one of the other three drugs in the ordinary form Sulfanilamide is the medication of choice if vomiting occurs but troublesome vomiting makes the intravenous route imperative. The development of hæmaturia with any of the other drugs calls for a change to sulfanilamide. We have had little experience with soluseptazine, intravenously.

The intramuscular injection of the sodium salts should be prohibited. They may cause local damage due to their high alkalinity; leakage of the drug into the subcutaneous tissues can produce a marked slough.

1162F, sulfanilamide, has been used extensively in France by intraspinal injection[31-35] as an adjunct to chemotherapy by other routes, but sodium sulfapyridine by this route has been condemned as prone to cause damage to nerve tissue.[36-39]

All observers agree that one should give a good loading dose at the commencement of therapy because this shortens the total period of treatment. They do not all agree on the method used to obtain this objective.

Long[21] advocates (orally) in severe infections 0.10 gram sulfanilamide per kilogram of body weight as the initial dose. This is followed by the same quantity as a total daily dose, divided into six equal parts given day and night until the temperature is normal for 7 days. (Milder infections receive the same dosage by weight for 5 days of normal temperature without the initial massive loading dose). His intravenous dosage consists of an initial administration of 0.06 gram sodium sulfapyridine per kilogram body weight in a 5 per cent solution of sterile freshly distilled water. Subsequent doses are 0.03 gram per kilogram repeated at 6-hour intervals. (His subcutaneous dose for sulfanilamide consists of 0.10 gram per kilogram of body weight, made up in a 1 per cent solution in sterile physiological saline or 1/6 molar solution of sodium racemic lactate. Subsequent doses are 0.05 to 0.075 gram per kilogram every 6 to 8 hours).

Banks'[23, 28] method is shown in the following table. It gives the oral dose in grams for the first 2 to 3 days, depending on the severity of the case. Infants of over a few months of age tolerate the lowest quantity, 3

Age in years	0–	2–	5–	10–	15+
Daily amount in grams	3	4.5	6	7.5	9
Individual dose	½	¾	1	1¼	1½

grams a day quite well. The amount given is divided into 6 doses at 4 hourly intervals day and night for the first two to three days, then 2/3 the amount is given for the next 2 days, and finally 1/3 for the last 2 days. The total amount given to an adult is 36 to 50 grams over a period of 6 to 7 days. Banks in 1939 gave an adult 45 to 55 grams over a period 8 to 9 days. A tall heavy adult may receive 10.5 grams for the first day. One could add ¼ gram to the first and second dose below 5 years of age and ½ gram above 5 years. The above directions are for sulfanilamide, they are somewhat high for sulfapyridine, but appear safe if not exceeded. The scale dosage is considerably higher for children than adults, weight for weight, consequently in children it should never be increased. Any increment in the first two loading doses should never exceed ¼ gram. No loading dose is necessary at the lower ages of each age-group. When given intravenously to an adult the dose is 2 grams of sodium sulfapyridine for the first two doses, each diluted in 3 volumes of saline, only for the very acute case. Banks prefers sulfapyridine by œsophageal tube to sodium sulfapyridine intravenously as soon as possible. Long, as well, prefers to use the oral route of therapy in preference to the intravenous, whenever possible.

Large numbers of cases treated with chemotherapy have shown a low mortality. Perry mentioned 900 patients treated with chemotherapy drugs alone, giving a mortality of 6 to 7 per cent.[43] Banks holds that chemotherapy itself should give a mortality of 5 per cent or less in a mixed series of all ages, the patients being in a reasonable physical condition.[24] A group of his cases in 1939 gave a gross mortality of 6.6 per cent, a corrected mortality of 1.4 per cent[23]; his mortality during the epidemic of 1940 was 10 per cent. Of the 12 epidemic cases in 1940, under 1 year of age, 6 died, while in the sporadic group of 1939, the same age, one died out of 10.[28] Williams and Brinton[44] reported 45 cases, aged 15 to 20 years, all recovered. Cushing's[45] mortality was 2.9 per cent in 135 cases. Williams[46] in 102 patients under 16 years of age had a gross mortality of 12.7 per cent, a corrected mortality of 7.2 per cent; 21 patients under 1 year of age gave a mortality of 19 per cent. Peters'[47] 42 cases gave a gross mortality of 11.9 per cent (a corrected of 7.5 per cent). Hunter's[39] death rate was 5 per cent in 20 cases. Only a few of the above cases were treated with serum in addition to chemotherapy by some of the authors mentioned. The remainder were given chemotherapy alone.

ANALYSIS OF CASES

We have collected 41 cases of meningococcus infection from 1937 to the early part of 1941. Most of them were admitted to the Children's Memorial Hospital, the remainder to either the Alexandra or the Montreal Children's Hospital. The group was under the care of various members of the visiting staff of these institutions. Two had meningococcal bacteriæmia without meningitis; 39 had meningitis; 6 of them died, giving a gross mortality of 14.6 per cent. Five of the deaths could be eliminated from the series leaving one death in 36 patients, a corrected mortality of 2.7 per cent, (the reasons for these eliminations will be noted below). The death in the patient aged 11 8/12 years was accidental, several hours after lumbar puncture. (The initial pressure of the cerebrospinal fluid was 600 mm. of water, 6 to 7 c.c. of fluid was withdrawn and the final pressure was 350. The Queckenstedt was normal).

Age group	*Recovered*	*Died*
6 to 7 weeks	1	1
2½ months to 5 months	3	0
6 to 12 months	4	3
13 months to 2 years	3	1
2½ to 6 years	10	0
7 to 10 years	8	0
11 to 14 years	3	1
20 to 34 years	3	0

Twenty-four cases received sulfapyridine alone; 2 died, both in 1940. One, aged 1 year, was ill and fretful for 4 weeks and having convulsions for 5 days prior to admission. Died 8 hours after admission. The other, aged 7 weeks, was ill 2 weeks and received small amounts of the drug; died 2 days after admission.

Three were given sulfapyridine and sulfanilamide. One child, 8 years of age, relapsed; she recovered eventually. She received, for the original attack, a total of 20 grams; 8 doses were given intravenously, the remainder was given by mouth. Treatment of the relapse consisted of 30 c.c. antimeningococcus serum intravenously and 24.3 grams, 8 doses intravenously and 2 intramuscularly; the rest was given orally.

Five received sulfanilamide. (One was given anti-influenzal rabbit serum, as well, at the commencement of treatment because it was first thought to be influenzal meningitis). Three were given sulfapyridine and/or sulfanilamide with some doses of soluseptazine or sulfathiazole. Two received antimeningococcus serum intrathecally with either sulfapyridine or sulfanilamide.

One, in 1941, was treated with sulfapyridine, soluseptazine, sulfanilamide antimeningococcus serum intrathecally, antimeningococcus antitoxin intravenously and complement. This child aged 20 months was ill more than three weeks prior to admission and died 2 weeks after. We did not deduct this case from the series because her general symptoms occurred over a period of more than 3 weeks but definite symptoms referable to the nervous system appeared 2 days prior to admission. At this point it is well to bear in mind that the duration of the meningitis is usually the deciding factor in the prognosis rather than the time of onset of the infection. One should therefore make a careful analysis of the history before he eliminates a case from his statistics.

One child died in 1939, aged 6 months; ill 3 weeks prior to admission and admitted with hydrocephalus. It received serum and chemotherapy.

Two died not having received chemotherapy, one accidentally following lumbar puncture, ten hours after admission. The other had been ill 16 days on admission.

Nineteen of our cases were critically ill; 14 were moderately severe in type, and 8 were only moderately ill. Twenty-one were males with 3 deaths; 20 were females with 3 deaths.

The medication was administered by mouth except when the patient was comatose or otherwise extremely ill or if vomiting was a marked feature, under these circumstances the drug was given parenterally in the form of sodium sulfapyridine, occasionally soluseptazine was used intravenously. Sodium sulfapyridine was given continuously by the vein to 15 patients, from one dose to 2.5 days treatment. It was administered intramuscularly to 2 patients, when not taken by mouth. Six received sodium sulfapyridine either by vein or intramuscularly.

The average duration of treatment of this group of patients with sulfonamides was 9.2 days in 36 cases (5 that died are excluded). The shortest period of treatment was 5 days in a child of three years of age, the longest 24 days in a child of 8 years ill one day on admission and developing arthritis of one knee on the 6th day of disease.

The total amount of chemotherapy varied from 9.6 grams in 8 1/3 days for an infant of 6 months to 51.6 grams for an adult. (One

child 20 months of age received somewhat less. An adult received 30 c.c., antimeningococcus serum intrathecally on admission, and over a period of 6 5/6 days 22.8 grams of sulfapyridine by mouth or the sodium salt intramuscularly. He developed a facial paralysis on the 13th hospital day and scarlet fever on the 24th day. Complete recovery was made from all the conditions mentioned before his discharge from the hospital).

The amount given during the first 24 hours of treatment ranged from 0.93 grains per pound of body weight partly intravenously and intramuscularly as well as by the oral route to a child aged 14 years weighing 96 pounds, to 4.7 grains per pound to an infant of 6 months of age weighing 10½ pounds. Quite a number of the patients were given about 1.5 grains per pound in the first 24 hours. Occasionally as the need rose the dose was increased on subsequent days, but generally the amount of the drug was diminished on the second day and from then on gradually decreased until the treatment was completely stopped.

The initial dose was on the average 1.56 greater than each of the succeeding doses in the first 24 hours of treatment. In 16 cases the doses of the first day were equally divided; in 12 the first dose was double the succeeding ones; in 3 it was 2.3 to 3 times the remaining ones. For the remainder of the patients the first 2 or 3 doses were equal but larger than those that followed.

Blood levels when taken in the first 24 to 48 hours of treatment were often 6 mg. per cent and even as high as 8.1 to 13 per cent. A few showed low levels, 1.71 to 2.25 mgm. per cent, the latter for sulfanilamide in a case which developed metastatic endophthalmitis of one eye first noted on the 6th day of treatment.

We did not type the meningococcus found in our series of cases. Of 27 nasopharyngeal cultures taken, 5 were positive; one laryngeal culture was taken, it was positive. In 33 of 41 cases, 82.9 per cent, the meningococcus was found on smear or culture of the cerebrospinal fluid and/or blood. The organism was cultured from the cerebrospinal fluid of 26 patients, at the first lumbar puncture. Subsequent cultures of the fluid taken in 17 cases 24 to 48 hours after the first were sterile. A few done a week after admission were also negative.

The subacute or chronic meningococcus bacteræmia has a tendency to spontaneous cure, but may end in endocarditis, arthritis, or meningitis. It is easily cured by the sulfonamides in use for this condition.

The acute fulminating type of bacteriæmia,[48, 50] the Waterhouse-Friderichsen syndrome is on the other hand highly and rapidly fatal. The onset is sudden. There is vomiting, diarrhœa, followed shortly by cyanosis, marked purpura, lethargy, coma, high fever, and death in less than 24 to 48 hours of the onset. The common pathological findings are purpura and massive bilateral hæmorrhage into the adrenal glands; occasionally only one adrenal is involved. The hæmorrhages may vary from multiple pin point areas to a massive type, converting the adrenal into a blood cyst.[54] We had in our care no cases which we could classify in this group.

Temperature Reaction

An adequate amount of sulfonamides administered early enough causes the temperature to fall to normal within 24 hours and may keep the patient afebrile during the rest of his stay in the hospital. If the temperature continues without much diminution, or if after a preliminary drop it rises again to a greater or lesser degree, then one must consider the following possibilities, singly or in combination, as the cause of the fever: (1) Chemotherapy fever. This usually occurs on the 5th to the 9th day of treatment, though it may occur on the first or the thirtieth day with sulfapyridine and sulfanilamide. The fever is a complication in 10 per cent of cases with sulfanilamide and sulfathiazole but only 4 per cent with sulfapyridine.[21] (2) Inadequate amount of chemotherapy with or without the development of obvious complications due to the disease, or late institution of treatment. (3) Associated conditions, such as measles which occurred in two of our cases.

We divided 35 cases into 3 groups according to their temperature reaction (6 fatalities excluded).

Group A (9 cases). The temperature reached normal in 4 to 24 hours and the patient remained afebrile from then on.

Group B (10 cases). The temperature reached normal in 8 to 20 hours, but there was either an occasional rise to 100 to 100.3° (rectal) or 99 to 99.3° (oral) or fever of this degree for a few days after the preliminary drop in temperature.

Group C (16 cases). The temperature was normal after 4 days of treatment in one patient and did not rise again. The rest of the patients showed either fever of 100 to 100.3 for several days or rises to 101 and some to 102 after the preliminary disappearance of the fever.

CEREBROSPINAL FLUID CHANGES

The cerebrospinal fluid in the patients with meningitis usually shows on admission a cell count of 4,000 to 10,000 white cells all or mostly polymorphonuclears; occasionally the count is as high as 50,000. The Pandy test is strongly positive. In a few cases there is a rise in cell count the next day but usually there is a marked drop in the number of cells at the end of 48 hours, and mononuclears rapidly replace the polymorphonuclears. The Pandy test may be negative and the cell count normal in 7 to 16 days from the commencement of treatment.

Taking Merritt and Fremont-Smith's[14] normal of 0 to 5 cells per c.mm. of cerebrospinal fluid rather than Neel's[60] 0 to 1 cell per c.mm., then the fluid was normal in 2 cases on the 7th to 8th day; 7 were normal by the 11th to 16th hospital day. Three showed 7 to 10 cells on the 7th to 8th day. One had 7 cells with a trace of globulin on the 14th day. One fluid on the 11th hospital day had a cell count of 24 with a negative Pandy. One showed on the 16th day 36 cells, 31 of them were white cells mostly lymphocytes, the remainder were red blood cells. Of two cases on the 16th to 19th day, one showed 7 lymphocytes, the other 8 lymphocytes and 10 red blood cells, and a positive Pandy.

The patient whose death was the only one charged against this series still showed a cerebrospinal fluid count of 40 cells, 50 per cent lymphocytes and 50 per cent polymorphonuclears by the 14th hospital day. She died next day. (This patient received serum intraspinally in addition to other forms of medication).

The fluid from the patient who relapsed gave a cell count of 20,000, 95 per cent polymorphonuclears, and a Pandy +++ on admission. On the 7th hospital day the count was 34 cells all lymphocytes, on the 12th day it was 24 lymphocytes. The relapse occurred on the 25th day with a rise in temperature, the cerebrospinal fluid count was 210 cells mostly lymphocytes with a faint trace of globulin. On the 36th day the count was 137 cells 82 per cent polymorphonuclears, 18 per cent lymphocytes and a positive Pandy. The last lumbar puncture done on the 45th day gave a count of 37 cells, 94.3 per cent lymphocytes. The patient made a complete recovery.

The number of lumbar punctures varied with the wishes of the attending physician in charge of the patient. Those who received only one or two repeat lumbar punctures did not seem to suffer in comparison with those who had numerous taps. A patient treated early and adequately enough will not require repeated lumbar punctures for the relief of increased intracranial pressure, because under these favourable conditions the intracranial pressure will fall rapidly enough to normal without the aid of a tap. The old dictum "where there is pus it must be evacuated" applies to an abscess which is encysted without an outlet to the outside, not to a freely circulating cerebrospinal fluid.

SUMMARY AND CONCLUSIONS

1. The meningococcal infections may be treated successfully with sulfonamides alone. Treated adequately and early enough with chemotherapy, the mortality in a mixed series in reasonable physical condition should be less than 5 per cent. Chemotherapy acts as an adjunct to the immunological processes of the patient; low dosage is dangerous; it throws too great a burden on the patient's resources.

2. In a series of 41 cases of meningococcal infection there were two with bacteriæmia and no meningitis, both of the latter recovered. Chemotherapy was used alone in most of the cases, sulfapyridine more than sulfanilamide. The gross mortality was 14.6 per cent, the corrected mortality 2.7 per cent.

3. Serum is apparently not essential as an adjunct to chemotherapy in the treatment of these infections (some observers believe it necessary in the fulminating type of infection). It should not be administered intrathecally, but may be used intravenously or intramuscularly. It may be probable that no given therapeutic agent need enter the cerebrospinal fluid to effect a cure of this disease.

4. Therapeutic lumbar punctures are unnecessary in cases treated adequately and early in the course of the disease.

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did the bacteriological studies on these cases. The supplies of soluseptazine were received through the courtesy of Poulenc Frères of Montreal. I wish to thank the members of the attending staff of the Alexandra Hospital, the Montreal Children's Hospital, and the Children's Memorial Hospital for permission to include in this series the cases which had been under their supervision, and the nursing staffs of these institutions for their kind co-operation.

A complete list of references can be obtained from the author. The figures in the text refer to the items in the reprints.

RÉSUMÉ

Il est maintenant admis que l'infection méningococcique peut être traitée avec succès par les seuls sulfamidés. Lorsque le traitement est bien appliqué la mortalité doit être inférieure à 5 pour cent. En somme, la chémothérapie agit comme un adjuvant aux ressources d'immunisation de l'individu. Les dosages timides sont dangereux; il faut donner dès le début la dose thérapeutique maxima. Nos malades ont reçu la seule médication sulfamidée; plus ont reçu la sulfapyridine que la sulfanilamide. La mortalité globale fut de 14.6 pour cent; la mortalité corrigée est de 2.7 pour cent. Même dans les cas fulgurants on peut se passer du sérum antiméningococcique; à tout événement, si on veut l'administrer il faut le donner dans les veines ou dans les muscles, et jamais en injection intrarachidienne. Il en est de même pour les sulfamidés. Il est probable qu'il n'est pas nécessaire d'utiliser la voie rachidienne pour obtenir un effet thérapeutique, quelque soit l'agent médicamenteux que l'on utilise. Les ponctions lombaires dites thérapeutiques ne sont pas nécessaires lorsque les malades sont traités dès le début et que les doses ont été suffisantes.

JEAN SAUCIER

PREOPERATIVE AND POSTOPERATIVE MEDICATION*

BY M. DIGBY LEIGH

Montreal

FOR some years few changes occurred in preoperative and postoperative medication. However, the advent of new sedative drugs, new anæsthetic agents, and new techniques either gave rise to fresh ideas on this subject or revived some of the old ones. Most of these ideas, especially as regards preoperative sedation, have come from the anæsthetists themselves. They noted that, in a large number of cases, routine medication was fairly satisfactory, but in other instances the preoperative drugs were a definite hindrance, as regards all phases of anæsthesia, which included induction, maintenance, and recovery. Therefore, there has been a return to the feeling that the anæsthetist is the most competent person to order the preoperative medication. In keeping with this view, it is now becoming one of the routine duties of the anæsthetist to make preoperative rounds to visit the surgical patients the night before operation, and on this call to determine and order the medication.

In order to obtain the greatest benefit from the pre-operative medication, the anæsthetist should consider four points; namely, the desired effects, the available drugs to produce these effects, dosage, and the time and method of administration.

The desired effects fall under two main headings. The first is the production of a quiet, comfortable patient, whose fear or apprehension of the surgical procedure is minimized. The second is the reduction of toxicity from the anæsthesia. The following examples illustrate this point. The medication reduces the amount of cyclopropane or intravenous barbiturate necessary for anæsthesia. It increases the amount of oxygen which can be supplied with the weaker anæsthetics, nitrous oxide and ethylene. It protects the individual against the excitement, delirium, and convulsions occasionally seen with local anæsthetics. Finally, it reduces the secretion in the air-passages, which improves pulmonary ventilation and the free exchange of gases.

To minimize apprehension and reduce the toxicity of the anæsthetics, there are two groups of drugs. The members of the first group are the opiates, such as morphine, pantopon, codeine, heroin, and dilaudid, as well as the ultra short-acting barbiturates, evipal and pentothal. In addition to inducing a state akin to sleep, they have good analgesic or pain-relieving properties. The members of the second group are the moderately short-acting barbiturates, such as nembutal, seconal, delvinal, and numerous others, the alcohols, which include avertin and ethyl alcohol, and a few others such as chloral hydrate and paraldehyde. The drugs in this second group are good hypnotics but have almost no analgesic properties.

In order to lessen the secretions in the air passages, members of the above sedative groups are combined with either atropine or scopolamine, known also as hyoscine. Scopolamine in

* From the Department of Anæsthesia, Children's Memorial Hospital, Montreal, Canada.

itself can also cause noticeable sedative and amnesic effects.

For simple cases, a combination of one or both groups of sedative drugs and atropine or scopolamine is satisfactory. For the more complex cases, however, the choice of premedication may be most important, as the following examples illustrate.

If the patient is in pain, one of the hypnotic group of drugs alone, such as nembutal, seconal, delvinal, avertin, chloral hydrate, or paraldehyde will not give repose, but may result in a noisiness and restlessness. Hence in these cases, it is essential to include an opiate, preferably dilaudid, in the preoperative medication. Again, in those with increased intracranial pressure, a small dose of sedative, especially an opiate, may bring on a dangerous depression of respiration. Another special circumstance occurs when a woman is in labour. Large doses of sedatives given to the mother within a few hours of delivery frequently affect the new-born infant, so that its respirations are infrequent and irregular until the sedative effect has worn off. Opiates also may aggravate the itchiness of a pruritus. Then again, although quite a few patients believe they have an idiosyncrasy to opiates, which they claim cause nausea, emesis or restlessness, it is surprising how few people react unfavourably to opiates if these are carefully administered. These untoward effects may be eliminated when the opiate is combined with scopolamine, when it is given in divided doses an hour apart, or when the patient is kept in the recumbent position for at least twenty-four hours after the administration. Yet another group of patients develops a dermatitis from the barbiturates. And finally, for the chronic alcoholic, a generous alcoholic drink an hour before anæsthesia will give a much quieter patient during the induction of anæsthesia, and one who can be kept anæsthetized with a much smaller amount of the anæsthetic agent.

Having selected the drugs, the anæsthetist must next decide the dosage. Experience with a drug or combination of sedative drugs gives the physician a rough idea of the response of the different age and sex groups. Increased or decreased reflex excitability or variable oxygen demand requires an adjustment of these basic doses to reduce apprehension and toxicity. That is, persons with hyperthyroidism, acute pain, high fever, great fear, mania, or a rugged athletic constitution require much larger doses of sedative to bring them to a suitable state of tranquillity. On the other hand, the myxœdematous or hypothyroid patient, or the debilitated frail individual requires smaller doses of sedative to depress him to the desired degree. There has been a tendency in the last few years to make the depression too profound, by using very large doses of sedatives. This practice is definitely hazardous, for these large doses dull the sensitivity of the respiratory mechanism so that respiration is no longer stimulated either by small increases in the blood carbon dioxide, or by small decreases in the blood oxygen. When a patient has been damaged by a long-continued inadequate oxygenation, due to decreased sensitivity of his respiratory mechanism, his recovery may be problematical. Although the removal of fear is desirable, profound depression may accompany it. Therefore, the anæsthetist must balance one against the other in prescribing preanæsthetic drugs.

The final point to consider is the time and method of administration of the preoperative medication. There is considerable latitude in this choice. From the anæsthetic point of view, it is safer when using nitrous oxide, ethylene, or intravenous barbiturates, namely, evipal and pentothal, to take advantage of the maximum analgesic properties of the opiates. Morphine, pantopon and dilaudid subcutaneously reach their maximum analgesic effect from one to one and a half hours after the injection, whereas heroin and codeine subcutaneously, reach their peak analgesic effect in a little over thirty minutes. Intravenously, however, these five opiates reach their maximum analgesic effect in twenty minutes. Maximum analgesic effect does not necessarily coincide with the maximum hypnotic effect, but there will be enough sedation to remove apprehension. When the hypnotics are used, such as nembutal, seconal and delvinal, avertin, chloral hydrate, and paraldehyde, then it is best to have the peak hypnotic effect occur at, or a little before the commencement of the anæsthesia. Nembutal, seconal, and delvinal orally, reach their maximum hypnotic effect in about one hour. Chloral hydrate orally, and paraldehyde and avertin rectally, reach their peak hypnotic effect in about thirty minutes. If the rectal instillation of avertin is rapid (within two or three minutes) there may be profound depression in

less than fifteen minutes. When these drugs are given rapidly, close vigilance of the patient's respirations is vital. Paraldehyde intramuscularly, produces its maximum depression in fifteen to twenty minutes.

In drying the secretions, atropine has little value if more than an hour elapses before the beginning of anæsthesia. Scopolamine is effective up to about one and a half hours. Atropine and scopolamine, however, should be given at the first, since there is evidence to show that these agents decrease some at least of the untoward effects of the opiates, particularly the nausea and the respiratory depression. If a long time elapses before operation then either the atropine or scopolamine can be repeated; this had better be done if the anæsthetic agent is to be ethyl or divinyl ether. On the surface, it seems that these attempts to time the preoperative medication with the operation would be completely impractical. It is surprising, however, how closely this can be gauged, especially if the surgical resident who posts the time of operation is familiar with the habits of his surgeon. So much for the preoperative medication.

Now a few words about the postoperative sedative. It should be remembered that the preoperative sedative still has an effect postoperatively. Consider oral nembutal which reaches its peak hypnotic effect in about an hour, but recovery from which takes several hours. Similarly the opiates may have an effect for several hours. It follows from this, that after operation the patient will have the combined depressing effect of preoperative sedative, anæsthetic and operation. This depression can either cause shock by anoxia, or aggravate a collapse which has been initiated by some other cause. There are, however, two postoperative conditions which seem to indicate the use of a sedative, and these are pain and restlessness. For pain an opiate is indicated, the best analgesic being dilaudid. If there has been no opiate included in the preoperative sedative or the pain is acute, then comparatively large doses will be required: but doses should seldom be as large as those used for preoperative medication. It is better to give small repeated doses frequently rather than massive doses infrequently. The incidence of postoperative atelectasis and pneumonia will be reduced if the patient is not too quiet over a long period of time. His pulmonary alveoli must be opened up occasionally by deep breaths. The next problem is the care of the restless patient. Once the cause is discovered, treatment is comparatively easy. If the patient is suffering pain postoperatively and the hypnotic drugs alone such as nembutal, seconal, delvinal, avertin, chloral hydrate, and paraldehyde have been given, then he will be very unco-operative and restless. Here an opiate, especially dilaudid, is indicated. If the patient suffers from hypoxia, which is a decreased oxygenation of the tissues caused by the usual postoperative respiratory and circulatory depression, he may be very restless. Under these circumstances it is surprising what repose can be obtained with a few hours of oxygen therapy by nasal catheter, B.L.B. mask or tent. Oxygen therapy under these conditions helps to clear the brain. It corresponds to the passenger in an aeroplane, who has taken an ordinary cocktail at sea level and is then taken up into an atmosphere of low oxygen pressure. He becomes very inebriated and unmanageable until the return to sea level, where the supply of oxygen is adequate.

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CHLOROFORM RUBBED ON SKIN STOPS ITCHING OF BITES.—To stop the itching of mosquito bites and chiggers, try rubbing the bites brisky with cotton soaked in chloroform, being careful to keep it away from eyes, nose and mouth. This should also be good for flea bites and swimmers' itch, says W. A. Hoffman, professor of parasitology at the School of Tropical Medicine in San Juan, Puerto Rico. It stops the itching quickly. The sooner it is used after the bites, the better, he found in tests on himself and several other persons, including some physicians, who had been bitten by the local red bug or chigger, mosquitoes, black flies and gnats. Skin doctors may object to chloroform as being too irritating, but Prof. Hoffman reports that it causes only a temporary burning sensation. He urges that it be given further, more critical trials.

VITAMIN THERAPY OF MUSCULAR DYSTROPHY*

BY WILLIAM A. HAWKE, M.D., M.R.C.P. (LOND.)

Toronto

DURING recent years a number of investigators have reported upon the treatment of muscular dystrophies by vitamins. Some claimed successful results, others, unsuccessful results. Because of the conflict of opinions, a small series of children with progressive muscular dystrophies attending the out-patient department of the Hospital for Sick Children were placed under treatment with various vitamin products.

The children selected for treatment (Table I) were 6 in number. Their ages varied from four and a half to twelve years, and the duration of the condition from two to eight years. Two of them were severely, two moderately, and two slightly involved. Five of them were typical of the pseudo-hypertrophic group, but one had an unusual distribution, comparable to the type described by Gower, the atrophy involving the peripheral rather than the proximal musculature. Only one of them had a history of familial transmission, two of his brothers having had the same condition.

TABLE I.

Name	*Age*	*Duration of disease*	*Type of dystrophy*	*Degree of involvement*	*Family history*
J.F.	10 years	3 years	(Gower)	Moderate	Negative
W.M.	7½ years	2 years	Pseudohypertrophic	Slight	Negative
P.W.	9 years	4 years	Pseudohypertrophic	Severe	Negative
N.G.	10 years	8 years	Pseudohypertrophic	Severe	Negative
D.F.	12 years	6 years	Pseudohypertrophic	Moderate	Negative
C.L.	4½ years	2 years	Pseudohypertrophic	Slight	Positive

None of these children, according to the history given by their parents, had any unusual dietary, their diets comparing favourably with the average diet of the community. Several of these children received very well balanced diets and had taken on previous occasions yeast and cod liver oil preparations without any appreciable change in their condition at that time.

It is very difficult to assess accurately the results of treatment in the muscular dystrophies. When so many muscle groups are involved, slight changes in power are often masked and are difficult to detect. Patients who have been put to bed for any period of time soon become weaker. Any treatment which tends to get them out of bed will rapidly produce a temporary improvement in power. In the estimation of the progress of the disease one must lay some importance upon the statements of the child and parent about his general activity and muscular power. Suggestion can and does play an important part in their estimation of the child's ability. Successful results should therefore be taken cautiously because most of the possible errors in interpretation tend towards this conclusion. On the other hand, negative results are more liable to be accurate as the errors tend towards the opposite conclusion.

In order to assess the value of treatment in this series, the parents were questioned about their impressions of the child's power, fatigability, ability to climb stairs, run, play, and the ability to use and manipulate the arms. These impressions are found in Table II under improvement—subjective.

The children were examined at periodical intervals and the power of individual muscles recorded upon a chart. In addition, certain complex actions were charted, walking, climbing, rising from a prone position, etc. The tendency of the shoulder girdle to slip was noted and measurements of certain hypertrophied muscles were taken. The results of these examinations are found in Table II under improvement—objective.

Detailed accounts of the individual cases are given in Table II, along with a summary of the entire group. The duration of treatment in the

* From the Wards and Laboratories of the Hospital for Sick Children, Toronto, and the Department of Pædiatrics, University of Toronto, under the direction of Alan Brown, M.D., F.R.C.P. (Lond.).

Read at the Eighteenth Annual Meeting of the Canadian Society for the Study of Diseases of Children, Brockville, Ontario, June 14, 1941.

individual cases varied somewhat, due partly to the onset of the treatment and partly to slightly irregular attendance towards the end of the investigation.

TABLE II.

RESULTS OF TREATMENT

Name	*Thiamin*			*Placebo*			*Pyridoxine*			*Alpha-tocopherol Series A*			*Alpha-tocopherol Series B*		
	D	*S*	*O*	*D*	*S*	*O*	*D*	*S*	*O*	*D*	*S*	*O*	*D*	*S*	*O*
J.F.....	2	No	No	18	No	No	6	No	No	7	No	No	8	No	No
W.M.....	34	Sl.	No	24	No	No	6	No	No	18	No	No	8	No	No
P.W.....	30	No	No	24	No	No	6	No	No	8	No	No	6	No	No
N.G.....	2	No	No	20	Sl.	No	6	No	No	13	No	No	16	No	No
D.F.....	17	Sl.	No	24	Sl.	No	6	No	No	12	Sl.	No	12	No	No
C.L.....	9	Sl.	No	24	Sl.	No	6	No	No	18	No	No	8	No	No

D—Duration of treatment in weeks. S—Improvement, subjective. O—Improvement, objective. Sl.—Slight. No—None.

THIAMIN CHLORIDE—VITAMIN B_1

McCormick[1] felt that the diet of many people in his community was deficient in the B complex, particularly in thiamin. He therefore treated several cases of muscular dystrophy with thiamin chloride, other members of the B complex and vitamin E. He gave synthetic B_1 orally and hypodermically, averaging five mgm. daily, and introduced into the diet wheat germ, yeast extract and egg yolk. In these cases he reported striking improvement upon this regimen within a month or six weeks.

Our series was given 25 mgm. of thiamin subcutaneously each week, one milligram by mouth daily and three drams of beminal.* This was not a large dose of thiamin compared to dosages in use at the present time, but was comparable to that used by McCormick in his series.

Slight improvement was claimed in a number of our cases by both parents and children. Examination of the children showed however no demonstrable improvement. After a variable period of time they were shifted to placebos by injection and by mouth. On this thiamin-free therapy the reported improvement was maintained for over six weeks. It was felt that the improvement was mainly due to suggestion, although it was possible that the thiamin produced some effect through a general tonic effect.

PYRIDOXINE—VITAMIN B_6

Antopol,[2] by placing rats upon a B_6 deficient diet, produced in them a definite muscular necrosis and atrophy. The changes were not identical with those of the human dystrophies but had some points of similarity. He then treated six cases of muscular dystrophy with pyridoxine. The dosage varied, but lay between 100 and 500 mgm. per week. Three of the four children with a generalized involvement showed some improvement, as did one child with a localized involvement and one adult with generalized involvement. The involvement occurred within a few weeks.

Ferrebee *et al.*[3] reported no improvement in thirteen cases of muscular dystrophy given pyridoxine for two to twelve months. The dosage was 10 to 30 mgm. by mouth daily.

Our series was given 75 mgm. of pyridoxine* subcutaneously at biweekly intervals for six weeks, a dosage comparable to those used by Antopol. There was no improvement subjectively or objectively in any of our cases.

ALPHA-TOCOPHEROL—VITAMIN E

After thirty to sixty weeks on a vitamin E deficient diet, adult rats show weakness and atrophy of the hind legs.[8] The muscles revealed changes comparable to those seen in pyridoxine deficiency and resembling in some points the human dystrophies. These changes are irreversible by vitamin E therapy once they have developed. If adult female rats upon an E deficient diet are given just enough vitamin E to ensure a normal gestation, they will produce a litter which if placed upon an E deficient diet rapidly shows marked weakness and severe muscular atrophy.[9] The changes are comparable to those found at a later date in the adult animals but are reversible by the administration of vitamin E. Similar muscular changes have been observed in other animals, chiefly fowl and herbivora—ducks, rabbits, guinea pigs, etc.

Bicknell[4] gave one ounce of wheat germ daily

* Beminal concentrate, Ayerst, McKenna and Harrison, each dram containing 275 units of B_1, 5 milligrams of nicotinic acid, 100 gamma of riboflavin and the B_6 and filtrate factor from 7 grams of fresh calves' liver.

* Synthetic pyridoxine hydrochloride, Merck & Co.

to eighteen cases of muscular dystrophy. On this combined B and E therapy, he noticed a definite improvement in three and a slight improvement in six. The improvement was gradual and continued over many months. Stone[5] gave wheat germ oil and additional vitamin B to five cases. Three showed a definite improvement and two a slight improvement within a few months. Donovan[6] treated one case with wheat germ and noticed a definite improvement within six weeks.

Ferrebee[3] gave large doses of wheat germ, wheat germ oil and synthetic vitamin E, averaging 80 to 100 mgm. of alpha-tocopherol daily to thirteen cases. No improvement occurred in this group within twelve months. Sheldon, Butt and Woltman[7] treated eight cases of an older age-group, with combined wheat germ oil and natural E by mouth and injection for three months. No definite improvement occurred in these cases.

Our cases were given 3 mgm. of synthetic alpha-tocopherol* three times a day for several months (series A). On this dosage no improvement occurred. A number of the children were then given larger doses of vitamin E* averaging 90 mgm. alpha-tocopherol daily for several weeks (series B). On this dosage one boy claimed an improvement which was not maintained; two became much worse; and the rest showed no appreciable change.

* Ephynal—Hoffman LaRoche, synthetic alpha-tocopherol acetate.

CONCLUSIONS

A series of seven children with muscular dystrophies were treated by moderate amounts of vitamins B_1, B_6 and E. In no cases did any definite improvement occur.

I should like to thank the Ayerst, McKenna and Harrison Company, Hoffman LaRoche, and the Winthrop Chemical Company for their generous supplies of vitamin products.

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* Tofaxin—Winthrop Chemical Company, a distillate of vegetable oils containing alpha, beta and gamma tocopherol.

Case Report

AN UNUSUAL CASE OF QUININE POISONING

BY A. ERNEST MCCULLOCH, B.A., M.D.

Toronto

On September 29, 1941, answering an emergency call to a downtown apartment house, I found a young woman, 22 years of age, who had suddenly gone blind. The patient stated that on the previous day she had taken 24 capsules, each containing 5 grains of quinine, in the course of six hours. She had taken this enormous dose in order to produce an abortion, as she had missed two menstrual periods. Within a short time after starting the capsules she suffered severe vertigo, tinnitus and deafness. Six hours after taking the last capsule she became completely blind.

Examination.—The pupils were widely dilated and did not react to light. Due to this dilatation ophthalmoscopic examination was very easy. The fundus was pale and glistening, and gave one the impression of œdema. The disc was paler than usual and the outlines of the vessels stood out prominently. No papillœdema. The patient was unable to recognize light. Her skin was dry and hot. Temperature 99.4°; pulse 90. Otherwise, her physical condition was normal.

A large dose of castor oil was given at once. The impression of œdema of the retina being very strong, an ounce of Epsom salts in half a tumbler of water was ordered for the morning and fluids were restricted.

September 30th.—The patient could distinguish between light and darkness. Her temperature was normal. Pulse 90°. There was some bleeding from the vagina.

October 1st.—A distinct improvement in vision. She counted the fingers correctly when held directly in front of the eyes at a distance of 18 inches.

October 2nd.—Patient described her sight as if she were looking through a cylinder at dusk. Severe vaginal bleeding with heavy clots.

October 3rd, 4th and 5th.—Very little change. "Everything looks dark" was her phrase.

October 6th.—Patient was sent to an eye specialist, Dr. R. J. P. McCulloch, who reported as follows: "The vision of the right eye is 6/12; that of the left 6/18. The pupils are semi-dilated and immobile. There is marked pallor of the optic discs and contraction of the retinal arteries. There is generalized œdema of the whole retina, with marked generalized contraction of the fields of vision." It was decided that the object of treatment should be dilatation of the retinal vessels in the hope of preventing thrombus formation, so sodium nitrite, gr. 1, three times a day, was ordered, as well as short wave treatments over the eyes.

October 10th.—The patient was confident that there was some improvement, as things looked clearer.

October 31st.—Steady improvement during the last two weeks. She took sodium nitrite daily as ordered and has had 8 short-wave treatments. She stated her sight was pretty good when she looked directly at an object, and felt she could go back to work.

November 19th.—She had been at work since November 1st. She was able to do her desk job, although the sight did not seem normal, as she could not see as well as formerly out of the sides or top of

the eyes. She would be quite surprised while working at her desk to find some one at her side. On the street if she looked down while walking, she was liable to run into something. Two weeks ago, while at her office, she had a severe menstrual period, expelling many clots accompanied by a sudden rush of blood.

April 12, 1942.—As there had been no change for four months she was sent for a final report on her eyes, which reads as follows: "The vision of the right eye is 6/9; that of the left 6/12. There is a slight pallor of the optic discs, more marked on the left side. The retinal arteries are still smaller than normal and the retinal veins are also contracted. The retinal œdema has now disappeared. She has a trifling error of refraction, correction of which does not improve her vision. The amount of contraction of the visual fields is about the same as that recorded October 6, 1941."

This is a startling case to encounter for the first time. The effect of large doses of quinine on the ears, *i.e.*, producing roaring and ringing sounds, dizziness, and even deafness is well known. But the effect on the eye is not so well known, at least to the general practitioner. On the muscles small doses produce increased power, while large doses bring on fatigue. On the pregnant uterus the drug tends to excite contraction of the uterine muscles.

On the eye moderate doses produce diminished visual power probably due to the blanching effect on the retina. Larger doses produce disturbance of the colour vision and contraction of the visual field. "Complete amaurosis lasting some days or weeks has been known to intervene."[1]

The Extra Pharmacopœia[2] quotes two cases of blindness caused by quinine, one in which the patient was blind for seven weeks, after which vision was restored for two months; then permanent blindness supervened, possibly due to the effect of alcohol and tobacco on the nerve fibres and ganglion cells. In the second case blindness was produced by taking 20 grams (300 grains). The central vision reappeared after 15 days, but the peripheral vision and vision for colours returned more slowly.

There are two theories regarding the pathology of quinine blindness. One is that the drug acts directly on the nerve elements, causing a degeneration of the ganglion cells and the nerve fibres. The other is that the vessels are at fault, vasoconstriction being caused first, followed by thickening of the vessel walls with thrombosis and obliteration of their lumen.

Shaler Richardson[3] reports a case similar to the one here reported, in which a woman of 24 took 8 grams (120 grains) of quinine to produce an abortion and became blind. Although vascular constriction and ischæmia were present in the retina he thought the primary effect of the poison was upon the vasomotor centres causing constriction of the vessels and finally change in their walls. He concluded that the drug must have a selective effect on the optic nerve since the ciliary and oculomotor side by side with the optic remain intact. He arranges the eye-symptoms in this order: (*a*) Complete loss of vision. (*b*) Recovery of function may occur. (*c*) Central vision comes back first and peripheral vision rarely comes back completely. (*d*) Colour sense often damaged. (*e*) Night blindness. His treatment was essentially the same, *i.e.*, vasodilators and purges.

Finally, we may mention that quinine may be fatal, as reported by Lynch and Brandt,[4] who present cases in which 50 grains produced fatal results in children. They also state that 300 grains often prove fatal in adults.

SUMMARY

A case of blindness caused by taking 120 grains of quinine in six hours is reported. Although there was recovery of vision in a week, the visual fields were permanently contracted. It is interesting to note that there was no improvement in the field of vision after the first week. It is emphasized that quinine is a toxic drug that may be fatal, and we suggest that it should be on the proscribed list.

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LOUVAIN UNIVERSITY DESTROYED AGAIN.—The library of the University of Louvain has suffered what seems to amount to approximate annihilation. Damaged in the World War and rebuilt largely with the financial aid of American well wishers, it was again destroyed in May, 1940. Of the 900,000 volumes only 15,000 survive, and of 800 manuscripts only 15. Three thousand collections of periodicals were completely destroyed by fire; likewise, 811 incunabula and 200 valuable engravings, including some by Dürer and Holbein, and the 22,606 photographs of all known Coptic manuscripts.—From the *Deutsche medizinsche Wochenschrift*, 1941, **67**: 577.

Editorial

THE ANNUAL MEETING AT JASPER PARK

IT is quite safe to say that the founders of our Association did not look forward to so great an expansion as we have undergone. They do not seem at any time to have indulged in the extremely uncertain occupation of prophecy. Nor of course could they under any circumstances have ever guessed at the condition of affairs in which the world is now enmeshed. All the more therefore would they have been impressed by our annual meeting this year at Jasper Park, by its numerical strength, and by the extraordinary success with which unusual difficulties were overcome. The comparison of various annual meetings will always be an invidious task, and we shall not undertake it, for each successive one leaves an impression of unsparing hospitality, of vigour in the Association, of friendliness. All these were present in the Jasper meeting, heightened by the charm of the setting and sharpened by the inescapable atmosphere of the war.

It had been expected that the chief issue for discussion at this meeting would be Health Insurance, and that in effect was the case. We are hardly in the position to lay down a course of action in circumstances which we are not directing, but we must clarify our ideas on the issue, and it may be said that at this meeting very marked progress was made in this respect.

Another vitally important matter to receive attention was the membership of our Association. This has increased very definitely since Federation has been attained, but it is realized that it must be yet further strengthened. There are encouraging signs that this is being brought about.

On the social side and in entertainment the necessary restrictions of war time tended to lessen some of the pleasures of driving, but the unconquerable Western hospitality fully compensated for that. Truly we brought away with us the memory of a very successful and enjoyable annual meeting.

H. E. M.

Editorial Comments

Nursing Service Problems in Hospitals

It is probable that if one were to compare conditions in large general hospitals today with those of four years ago a considerable degree of change would be noted. And yet the most remarkable thing is that the change is not greater than it actually is. We all know how hospital staffs have been drained of their strength, and are still being drained. To carry on the routine work throws on the reduced staff a strain which is nearly intolerable. Some readjustment of the demands on the staff has to be made. An interesting presentation of the point of view of the nursing profession in the matter is made by Miss Grace Fairley, the Director of Nursing in the Vancouver General Hospital (*Bulletin of the Vancouver Medical Association*, June, 1942). Miss Fairley points out that the shortage of nurses is really serious and then proceeds to suggest various methods which may be adopted to ease the extra burden produced. Many of these suggestions could be applied to our hospitals generally, and it seems timely to repeat some of them for the consideration of our profession.

The admission of patients for operation the following morning could be made at earlier hours, so as to avoid the piling up of work late in the evening. Emergencies of course must always be allowed for. The frequency of hourly treatments, such as fomentations, should be carefully watched. The visiting of wards by several doctors at different times, might be reduced to a minimum of regular rounds. In some instances the junior intern will make rounds, then the senior, then the staff doctor, and the occasional visitor will also be shown around. Standing orders for surgical cases would obviate much repetition.

These are a few of the suggestions made and we think they will bear consideration. We have been accustomed to unbroken almost unlimited service in hospitals. We have now to adjust our expectations, even as we are adjusting ourselves in every other walk of life. H.E.M.

La Société Médicale de Montréal

We have received the yearbook of 1942 for *La Société Médicale de Montréal*. This marks a progressive development in the life of the Society. Formerly it was content with publish-

ing an account of its annual "Clinical Days". This yearbook is more ambitious. It contains the "Clinical Days" and also includes some interesting historical details. There are biographical details of outstanding men in the life of the Society, and, in keeping with the celebrations of the Tercentenary of Montreal, there are notes on the development of some of the oldest medical institutions in the city.

The Society is to be congratulated on an interesting and useful publication, and we look for its establishment as a regular annual production.

H.E.M.

Retrospect

GOLD THERAPY IN RHEUMATOID ARTHRITIS

BY DEAN ROBINSON

Banff, Alta.

Although Great Britain has been said to be the classical land of rheumatism, the first book of all on this subject was written on the banks of the Seine by Dr. Gulielmus Ballonius, well known physician and clinician of Paris. It was written about the year 1600, was translated into German, and appeared a century and a half after his death. This Book on Rheumatism was said to be titled "Investigation of a Disease that was not Adequately Portrayed and Defined by Ancients" and "The Disease is called Rheumatic Affection or Outward Excretion".

Gold has been used in the treatment of disease since the middle ages. Abu Moussa Djafar (The Wise), first advocated gold in the form of aurum potable as a cure for every disease in man, plant or animal. Paracelsus (1493-1541), called the combination of gold and mercury, the elixir of life. In the latter part of the nineteenth century, began the widespread use of gold in the treatment of tuberculosis. Koch, in 1890, found that gold cyanide *in vitro* inhibits the growth of the tubercle bacillus in dilution of one in two million. About this time, White in the United States, recommended the use of a combination of gold and magnesium in the treatment of tuberculosis. In 1894 he first used it hypodermically and reported favourable results. On the continent, Moolgaard and Mayer and others reported good results in the treatment of tuberculosis with gold salts. In 1928-29, Umber in Germany and Forestier in France, almost simultaneously, applied the use of gold salts to the treatment of rheumatoid arthritis, because of the hypothetical association of rheumatoid arthritis and tuberculosis. Forestier in 1932 said, "So in 1928 I began to treat such patients with gold salts (the method introduced in treating tuberculosis by Moolgaard in 1914). Only after I had commenced the work did I hear of the experiments of Feldt in Germany, who showed curative action of injection of gold salts for experimental infections in rabbits". Forestier felt that a certain similarity existed between tuberculosis and rheumatoid arthritis, *i.e.*, impairment of general health, anæmia, leucocytosis and sometimes raised temperature. He stated, "Injection of gold salts, when properly administered, has given better results in the treatment of atrophic (rheumatoid) arthritis and all forms of infective arthritis than any previous method employed in France and on the other hand has little action, if any, on the different forms of degenerative arthritis (osteoarthritis)." He was gratified to observe after two years' treatment, that 60 per cent of his patients were greatly improved.

In 1934 Forestier reported 500 cases of chronic arthritis treated by gold salts, with improvement in 70 to 80 per cent. Since 1932 he has used gold salts in oily suspension. Slot, Deville, and others, of London, confirmed these findings. In 1934 they stated that in 14 cases of rheumatoid disease, the results obtained were superior to those in other methods previously employed by them. Pemberton reported 100 cases of chronic arthritis treated with gold salts; 12 cures, 38 much improved, 38 improved and 12 not improved.

Hartfall and Garland (1935) in *The Lancet*, reported a series of 100 cases: 10 cures, in 56 marked improvement, in 22 slight improvement, in 5 no improvement, and 3 deaths. Two deaths were due to purpura and one to agranulocytosis angina. They stated, "Chrysotherapy should only be undertaken by those who are fully alive to its dangers. The patient should be fully warned of these possibilities". In 1937, Hartfall, Garland and Goldie summarized the largest series of cases (900) of all types of arthritis. They reported cures or striking improvement in 80 per cent of rheumatoid patients.

In 1937, David Sashin and Joseph Spanbock reported from the arthritis clinic of the Hospital for Joint Diseases, 30 cases of rheumatoid arthritis with high sedimentation rates. They reported only cases having fifteen or more intravenous injections of gold sodium thiosulphate—up to two grams of dry gold salt. They said that a review of the literature revealed a high percentage of improvement in cases of active rheumatoid arthritis under the use of gold therapy. A study was made of 22 cases: 12 markedly improved, 5 slightly improved and 5 unimproved. They said, "We may therefore conclude, from our investigation and the reports in literature, that in active rheumatoid arthritis, gold therapy when given in small doses in selected cases is a safe procedure and offers us a means of combating the disease."

Very little work had been done in the United States and Canada until within the past five

years. Workers in the United States include Sashin and Spanbock, Oren, Phillips and Snyder, Traeger and Kelly. Hartung and Cotter, New York, report in April, 1940, as follows. "Our own experience with the use of gold salts in rheumatoid arthritis is somewhat comparable to the favourable reports in literature. We have observed that gold therapy gives a higher percentage of improvement than any other form of therapy yet used by us in the treatment of rheumatoid arthritis." They showed by their experiments that the main action of the gold salts was not bacteriostatic but rather a stimulation of some defence mechanism, probably in the reticulo-endothelial system. There is a bacteriostatic effect *in vitro* but when human blood is added, the bacteriostatic action was lost. However, it is probable that this effect may not occur parenterally. Bacteriostasis is not maintained after the gold therapy is stopped. Gold salts could act directly on the causative agent of rheumatoid arthritis, assuming that the causative agent is infectional.

Robert Lintz, of New York, states in a paper June 24, 1940: "In any disease where new remedies are being introduced at frequent intervals, one can be sure that none of the proposed methods has a generally accepted value. The typical course for such a new treatment as stated by Hench and others is, that it rises rather rapidly, reaches a peak in from three to five years, then falls as adverse reports begin to outnumber optimistic reports. Finally, the use of the treatment dies out after eight to ten years." These same authors point out that "it is significant that the curve of acceptance of gold salts in the treatment of rheumatoid arthritis is still rising after ten years." Only recently have there been favourable reports from the United States. Phillips reports on 18 patients, 9 of whom were diagnosed as rheumatoid arthritis. He was not favourably impressed with the use of gold salts. Oren then reported 100 cases of arthritis of all kinds. Of 66 cases of rheumatoid disease in the series, 60 responded well. Key and his associates found in 70 cases of rheumatoid disease in his series, that gold salts definitely ameliorated the course of the disease in the majority, regardless of the duration of the symptoms. Sashin, Spanbock and Kling found moderate to marked improvement in 85 per cent of the 80 patients with rheumatoid receiving gold salts. Snyder, Traeger and Kelly noted improvement in 48 per cent of the 50 cases of rheumatoid arthritis receiving chrysotherapy.

Robert Lintz says "In gold salts we have a valuable drug for the treatment of rheumatoid arthritis", and "The use of this preparation is attended with certain risks, and the physician must be able to recognize the first manifestation of any toxic reaction". These reactions should be watched for in the skin, the mouth, the gastro-intestinal tract, liver, kidney, blood vessels and blood, and locally. It is the unpredictable nature of these reactions that constitutes the chief hazard in the use of gold salts in rheumatoid arthritis.

Freyberg, Block and Levey, of the arthritis research unit, University of Michigan, stated in March, 1941: "There has been an increasing interest in the use of gold salts in the treatment of rheumatoid arthritis since the favourable report of Forestier, Paris, 1929. Reports from various parts of the world claim that gold therapy has been found more beneficial than any other treatment." In the United States it has been popular only in the past three years. It is endorsed by Key. They report on the metabolism, excretion and toxicity of gold and state, "The manner in which gold salts might produce benefit and the site of such action, are complete mysteries to us". Gold after disappearing from the blood does not remain in the synovial fluid, nor is it concentrated in the inflamed joint.

Ellman, Lawrence and Thorold, Rheumatic Unit, St. Stephens Hospital, London County Council, reported 90 cases divided into three classes: Group I (large dose group), Group II (small dose group), Group III (control group). They were all rheumatoids. Treatments were given for nine months in all cases, divided into two courses by an interval of six weeks. Progress was assessed by monthly sedimentation rates and the circumference of inflamed joints. Radiography and clinical examinations were carried out before and after treatment. Urine was tested weekly for albumin. All results are those at the end of nine months. Results were not assessed on cures but on making the disease inactive. A patient who has had the disease for several years cannot be cured, as destruction of the cartilage and bone causes permanent impairment of the function of the joint. What chemotherapy can do is to render the disease inactive so that no further damage can be done and it is often found that when this happens, the patients may be able to return to a full, useful and above all a comfortable life despite extensive damage to joint structures.

Criteria of inactivity are (1) the patient must be completely free of subjective joint pain; (2) if there is limitation of movement in joints, this must be painless; (3) the sedimentation rate must be normal. Though many of the patients have been able to get around and carry on normal duties, they have not been classed as inactive on account of some degree of pain on prolonged use of the joints or on attempting movement of the joints through their maximum possible range.

	Inactive	*Improved*	*No change*	*Worse*
Group I (large dose)	14	14	2	0
Group II (small dose)	8	20	1	1
Group III (control)	1	22	6	1

The sedimentation rate in group I was lowered in 93 per cent. In the small dose group it was

lowered in 97 per cent. In the control group it was lowered in 43 per cent and raised in 57 per cent. The greatest number were improved in the large dose group. Toxic reactions were greater in the large dose group and much less in the small dose group. The large dose group received doses of 0.2 gm. and the small dose group 0.1 gm. per week, and the control group sterile almond oil.

The authors conclude: "The results provide definite evidence of the ability of aurothioglucose to alter favourably the course of the disease in rheumatoid arthritis. In the absence of similar proof for other methods we therefore recommend the adoption of this treatment as a routine for all cases in which the disease shows evidence of a progressive course. Prolonged observation of these cases before instituting gold therapy, in the hope that spontaneous remission may occur, is not considered advisable, as permanent destruction of cartilage may result and complete restoration to normal will then be impossible. General constitutional, physical and orthopædic treatment, together with specific occupational therapy where possible, should of course be combined with gold treatment in order to restore the maximal functional efficiency to the joints."

Frank D. Howitt, physician to the British Red Cross Hospital, stated in 1939: "There is no doubt about the considerable value of gold in properly selected cases. The dangers have been somewhat exaggerated and it is proper to take a certain degree of risk in the condition in which the prognosis is so unfavourable. Moreover, it has been found that some of the most dramatic results have been obtained in cases in which unpleasant reactions have occurred. These include, skin manifestations, ulceration of the mouth, gastro-intestinal disturbances and œdema. If a careful watch is maintained serious reactions are unlikely to occur."

Ernest Fletcher, in *Medical Press and Circular,* March, 1941, states: "Chrysotherapy, introduced ten years ago, is the most important single contribution to the drug treatment of this disease (rheumatoid arthritis)." He recommends myocrisin and prefers the aqueous solution. He gives liver extract by mouth twice a day and nicotinic acid at times to prevent as far as possible, reactions.

W. S. C. Copeman, in the Encyclopædia of Medicine series, states, "The most promising drugs in the treatment of rheumatoid arthritis are gold salts injected intramuscularly or intravenously at intervals of five to eight days. Recent experience has shown, however, that some of the patients are, or become, intolerant of these substances and that their use in such cases is by no means without danger. Stomatitis, jaundice, diarrhœa, nephritis and rectal spasm have been reported and exfoliativa, with intense itching, is probably the most common."

William Tegner, in the *Proceedings of the Staff of the Mayo Clinic,* February, 1939, states, "The treatment of rheumatoid arthritis with gold salts has so far stood the test of time in Europe and is still gaining supporters there. It has the disadvantage of certain toxic manifestations, a disadvantage which must neither be minimized nor overstressed: but it has advantages of being a simple method available to ambulant cases and one in which results can be expected relatively quickly. One is repeatedly reminded that in any series of cases of chronic infective arthritis receiving any or no treatment 'the inevitable 70 per cent', as Miller stated, show improvement. But this improvement may too often take as long as six years to appear, whereas with gold, one can expect it in six months. This, I think, is very much in favour of gold therapy where one starts treatment with definite hopes of rapid improvement, without having to wait for contractures to develop and the disease to burn itself out."

Francis Bach, London, 1935, in his book Rheumatic Diseases, has this to say, "In some cases of the rheumatoid group, spectacular improvement occurred. In the first and second stages of the rheumatoid type of arthritis good clinical results have followed the use of Solganol B. The patients under my care were confined to bed during the period of treatment. Chemotherapy was combined with rest, adequate diet, and physiotherapy. Joint pain and stiffness appreciably diminished, and movement was increased. There was a gain in weight, a return to normal level of temperature and pulse rate, an improvement in the blood count and sedimentation rate, and in certain instances, radiographic evidence of an increase in bone density."

In an editorial in the *American Medical Journal,* August, 1941, it is stated that the percentage of cures is very much lower in the United States than in Europe. Ten to 35 per cent in the U.S. and 50 to 70 per cent in foreign publications. Also that in recent reports on chrysotherapy in rheumatoid arthritis, where careful histories were taken, it would seem that reactions ranging from mild to severe character occurred in almost half the treated patients. "Do the results warrant the risk?" they ask, and conclude with the statement that a definite place of aurotherapy in rheumatoid arthritis remains controversial.

In the editorial page of the same Journal, October, 1941, in a report of a meeting discussing the therapy in rheumatoid arthritis, Dr. Russell L. Cecil had treated 200 cases of rheumatoid with gold salts and is enthusiastic about the results. Of the 200 treated by Cecil one-third showed remission; one-third, considerable improvement; one-third or more had relapses. He believes that the outlook for gold therapy is promising. He said that in the treatment of rheumatoids four principles should be emphasized, rest, heat, rehabilitation and drug therapy, to relieve pain. Dr. Cecil believes that gold salts have solid merit: a more skeptical

view of their value was taken by other students of arthritis at this conference.

Hartung, Cotter and Gannon, New York Post-Graduate Medical School, reported in 1940, on "The Excretion of Gold following the administration of Gold sodium thiomalate in Rheumatoid Arthritis." They stated "It is generally agreed by those who have had a large experience with gold therapy in rheumatoid arthritis that this form of treatment is followed by encouraging therapeutic results in a large proportion of patients."

Bernard I. Comroe, Instructor in the School of Medicine, University of Pennsylvania, warns against toxic reactions and gives the following figures for their occurrence: erythema 25 per cent of patients, pruritus, one out of three, diarrhœa in 10 per cent, and sore mouth in 10 per cent. The mortality may be as high as 3 per cent he says. Even with these percentages which are high, Comroe is in favour of using gold therapy when all other more conservative measures fail. It is our opinion that if one waits to try out all the other remedies before using gold, much valuable time will be lost and probably a great deal of irreparable damage done.

We have covered most of the literature available, on the results of treatment of rheumatoid arthritis with gold salts. Opinions of the workers on the results have been given. We think the dangers of serious toxic reactions in gold therapy, with present day moderate doses have been overemphasized. However we believe that gold therapy should be used in institutions and under the care of physicians who are fully aware of the toxic reactions and danger signs. It is possible that many of the toxic signs and reactions have occurred because patients were ambulatory and were not sufficiently under the control of the physician.

The experience of the writer with this form of therapy has been gained over the past three years in a series of over 100 patients given gold therapy. After such a short time one cannot estimate the permanency of the results obtained here. However, the immediate results have approximated fairly closely those obtained in the European reports. At times, with as many as twenty patients taking gold at one time in the hospital, the erythrocytic sedimentation rate has dropped in all but one. All patients have been in hospital and at rest during the treatment. All in the series were rheumatoid cases, or mixed rheumatoid and osteoarthritic. They were examined beforehand and urinalysis, blood counts, sedimentation rates, and hæmoglobin estimations were done. The sedimentation rate was repeated every three weeks. They received aspirin for pain, and this was reduced in quantity as the pain decreased. They received warm mineral baths as soon as they were able. The physician daily moved joints to the fullest extent possible, without causing pain. When the patient was ready for exercises, these were started as active movements done by the patient himself while lying in bed. Most patients after having received the gold injection said they could notice a metallic taste. This would indicate that the gold is rapidly distributed throughout the body fluids.

There has not been one serious toxic reaction in our series. If a danger sign appeared we immediately stopped the injections, either temporarily or permanently. There has been nothing like the incidence of toxic reactions mentioned in the *American Medical Association Journal* editorial in 1941. On the other hand there have been dramatic changes for good. We believe the addition of gold therapy has made a great improvement in our former treatment of rheumatoid arthritis.

Men and Books

OSLER'S CLASS AT THE TORONTO SCHOOL OF MEDICINE*

BY J. H. ELLIOTT, M.B.

Toronto

Those who have read the life of Osler will recall that he went from W. A. Johnson's School at Weston (now Trinity College School at Port Hope) to Trinity College in the autumn of 1867, with a Dixon Prize Scholarship, but giving up all thought of a career in the priesthood he entered the Toronto School of Medicine in the autumn of 1868 and completed his second year during the session of 1869-70.

The records of the Toronto School of Medicine have not been carefully preserved, and no lists of students have been available for those who have written of his student days. Dr. James M. MacCallum, Emeritus Professor of Ophthalmology at the University of Toronto, has recently discovered the list of students registered for the session 1869-70, affording opportunity to make a study of those who were at the School during Osler's second year in Medicine.

In August, 1868, the Toronto General Hospital through lack of funds had to close its doors, and it was not until August, 1869, that it was enabled to reopen. During 1868-69 and for some time after use was made of the clinical material found in the Toronto Dispensary, the Jail, the Aged Men's Home, the Toronto Eye and Ear Infirmary, the Toronto Lying-in Hospital, Protestant Orphans' Home, House of Industry, Boys' Home and similar institutions. In 1869 some clinical

*Read at the Annual Meeting of the Canadian Medical Association, at Winnipeg, June, 1941.

lectures were given to students by those of the staff who were attached to the teaching faculties of the Victoria and Toronto Schools. This instruction was extended in the autumn of 1871 when the Trinity Medical School was reopened. This was at the end of Osler's first year at McGill, his third year in Medicine.

The faculty of the Toronto School for 1870 was advertised as follows in the *Canada Lancet*, September, 1870.

TORONTO SCHOOL OF MEDICINE

IN AFFILIATION WITH THE

UNIVERSITY OF TORONTO

XXVIII SESSION

LECTURES COMMENCE

1ST OCTOBER, 1870,

AND CONTINUE SIX MONTHS

Jos. Workman, M.D., Med. Supt. P.L.A., Emeritus Lecturer on Midwifery and Diseases of Women and Children.
W. R. Beaumont, M.D., F.R.C.S., Eng., Lecturer on Diseases of the Eye, Lithotomy and Lithotrity, Vesical Diseases, Stricture &c., &c., 118 Wellington Street West.
W. T. Aikins, M.D., Surgery, 70 Queen Street West.
H. H. Wright, M.D., Medicine, 187 Queen Street East.
Uzziel Ogden, M.D., Midwifery, &c., &c., 57 Adelaide Street West.
J. H. Richardson, M.D., M.R.C.S., Eng., Descriptive and Surgical Anatomy, 116 Bay Street.
J. Thorburn, M.D., Materia Medica, 'c., &c., 119 Church Street.
J. Bovell, M.D., M.R.C.P., Eng., Institutes of Medicine, 137 Brock Street.
M. Barrett, M.A., M.D., Physiology, Simcoe Street.
W. W. Ogden, M.D., Medical Jurisprudence, 242 Queen Street West.
M. H. Aikins, M.A., M.D., M.R.C.S., Eng., Primary Anatomy.
J. Rowell, M.D., Demonstrator of Anatomy, 306 Yonge Street.
W. Oldwright, A.M., M.D., Curator of Museum, 65 Jarvis Street.
J. E. Kennedy, A.B., M.D., 205 Queen Street West, and L. Macfarlane, M.D., 278 Yonge Street, Assistant Demonstrators of Anatomy.
Professor Croft, University College—Chemistry.
Professor Hincks, University College, Botany.
Clinical Medicine and Surgery by the Faculty.
Further information, circulars, &c., &c., may be had of

H. H. WRIGHT, M.D., *Secretary.* W. T. AIKINS, M.D., *President.*

That the teaching of medicine and surgery was mostly didactic may be gathered from an editorial of the time.*

"No greater mistake was ever made than when young men were sent out to contend with diseases and accidents, in districts far removed from counsel or assistance, without having had the most ample opportunity afforded them of studying diseases and accidents as they actually present themselves in the wards of a large hospital. But we hold that it is comparatively little use, for a student to walk the wards of the best appointed hospital, unless some older head takes an interest in pointing out to him the various phases which the same disease is capable of presenting at different times, and instructing him how to discriminate between diseases which often resemble each other very closely in outward appearance, but differ very widely as to their essential characters. This brings us back to the old question of clinical instruction, and the possibility of getting it more fully recognized in our own hospital, which after all, furnishes a fair amount of material for instruction, if it were only utilized.

"The University of Pennsylvania has been compelled to follow the popular current, and a few weeks ago appointed no less than six clinical lecturers.

"We think the present rather a favourable time for the inauguration of this new feature in connection with our Toronto schools, and that an effort should now be made to reorganize our existing medical schools, or to establish a new one altogether, on the recognized basis of clinical teaching, and we are fully persuaded that if this be done, that school, whichever it may be, that most fully carries out the principle, will occupy the foremost place among our educational institutions, and will receive the most hearty approval of the public, the profession, and the future medical students."

Dominion Medical Journal, July, 1870, p. 218.

The questions for the primary examination of the College of Physicians and Surgeons, Ontario, April, 1871, indicate the subjects taught and give some indication of the subject matter. The list appeared in the *Canada Lancet* of that year.

There were 67 students registered in the Toronto School of Medicine for the session 1869-70. For convenience of study they have been arranged in alphabetical order and an attempt made to list the date of graduation, year of qualification in Ontario, and subsequent residence.

Of the 67 students in this list of 1869-70 there are seven who, as far as we can learn, did not proceed to a degree or did not qualify in Ontario. A. Clarke, Ed. Ewen, J. Lace, G. A. MacNutt, Geo. Reid, R. B. Spiers, W. H. Young. They appear to have dropped medicine.

Three who proceeded to a degree I have been unable to trace—Chas. Morrow, R. Ogilvie, T. N. Reynolds, though Ogilvie registered for practice in Ontario.

Twenty-two did not graduate from Toronto. G. B. Hatch, M.D., and F. H. Young certified by the Homœopathic Board, Ontario, in 1862, appear to have been occasional students.

Thirteen graduated elsewhere. J. Bovell Johnson after graduating at McGill in 1876 lived and practised in England after securing his L.S.A. in 1881, finally entering the Church. Others graduating at McGill were Case, Farewell, J. R. Hamilton, James McDiarmid, Osler, and Smellie.

J. L. McDiarmid graduated at Trinity, A. Taylor, at Victoria, and J. S. Johnson, at Bellevue.

Fourteen of the group won twenty-four gold and silver medals at graduation.

A. D. Williams entered the British Colonial Service in British Guiana.

Fifty-five qualified for practice in Ontario and of these four entered the Asylum Service, Burgess, Metcalf, Lett and Jonathan Robinson, seven went to the United States, Minor went to Alpena and later to Detroit without proceeding to a degree.

A goodly number of this group of 67 students achieved local, national and international fame. T. J. W. Burgess who in 1870 won the silver medal and the Starr Gold Medal, reached high standing in the institutional care of the insane, and when

STUDENTS REGISTERED IN THE TORONTO SCHOOL OF MEDICINE 1869-70 WITH THE YEAR OF GRADUATION OF THOSE PROCEEDING TO A DEGREE AND THE YEAR OF QUALIFICATION TO PRACTISE IN ONTARIO

College of Physicians and Surgeons Ontario	*Name*	*Grad. M.B. Toronto*	*Other qualifications*	*Practised in*
1870	Arnott, Hy.	'70		Arva-London.
1879	Baldwin, J.	No deg	ree recorded	Toronto.
1872	Bates, S. L.	'72		Bowmanville, Toronto.
1870	Bell, F. F.	No deg	ree recorded	Amherstburg.
1870	Burt, Wm.	'70	Silver Medal M.D., '89	Paris, Ont.
1871	Black, W. S.	'71		Whitevale, Ont. Church St., Toronto.
	Bredin, W. W.	'73		Dryden, Mich., Denver, 1881.
1870	Burgess, T. J. W.	'70	Silver Medal Starr Silver Medal	Toronto, London, Verdun.
1871	Case, W. Hermanus		M.A., Trin., '68 M.D., McGill, '79	Hamilton.
1875	Cowan, G. H.	'71	M.R.C.S., Eng. '79	Napanee to 1892.
	Clarke, A.	No rec	ord	
	Close, J. A.	'73	Gold Medal Starr Silver Medal	
1871	Cole, H. J.	'71		Brantford to 1892.
1872	Donaldson, J.	'71		Singhampton.
1871	Delamater, R. H.	'71	Silver Medal B.A., '68	Fonthill, Attercliffe Co., Monk
	Ewen, T. E.		B.A., '70	
1870	Ellis, W. H.	'70	M.A., '68, LL.D., L.R.C.P.E., '71	Toronto.
1874	Farewell, G. McG.		M.D., McGill, '72	Dufferin's Creek, Princeton, Unionville.
1871	Forrest, W.	'71	Gold Medal M.D., '72 Starr Silver Medal B.A. '72	Mount Albert, Bradford.
1872	Forrest, Robert Wilson	'72		Toronto.
1872	Graham, J. E.	'69	Gold Medal; Starr Medal M.D., '70 L.R.C.P., '71	Professor of Medicine, U. of T.
1871	Graham, W. H.	'71		Granville, Mich., Toronto.
1871	Groves, A.	'71	M.D., '72	Fergus.
1870	Greenlees, A.	'70	Gold Medal, Starr Silver Medal	Toronto.
1872	Hamilton, J. R.		M.D.C.M., McGill, '71	Athlone, Co. Simcoe; Stratford. 1892 Attwood, Co. Perth.
1871	Henning, N. P.	'71	Silver Medal Starr Silver Medal	Smithville.
	Hatch, G. S.		M.D.	
1875	Jackes, G. W.	'72	M.D., '88	Eglinton.
1873	Johnson, A. J.	'70	M.B., Trin., '92 M.R.C.S., '71	
1874	Johnson, J. S.		M.D., Bellevue, '72	Oakville, Point Edward, 1892. Mount Charles, Co. Peel, Pelee Id., Sault Ste. Marie, 1902-8.
	Johnson, J. B.		L.F.P.S., Glasgow, '06 L.S.A., London, '81 M.D.C.M., McGill	England Holy Orders, 1915.
	Lace, J.			
1870	Lett, S.	'78	M.D., '79	Asylum, Toronto; Homewood.
1874	Ledyard, W. E.	'70	B.A., '67 M.R.C.S., '71	Toronto, 1874; San Francisco.
1873	Meldrum (N.W.)	'73	M.D., '90 Starr Gold Medal	Harrington, Co. Oxford; Ayr.
1875	McClure, W.	'72		Thorold in 1892.

at Verdun, Quebec, collaborated with Hurd, of Johns Hopkins, in a four volume work on the history of the care of the insane in the United States and Canada, Arnott soon began practice in London and was one of the founders of the Medical Faculty of the University of Western Ontario. Burt, a silver medallist in 1870, as an outstanding physician in Paris (Ont.), achieved more than local fame, was President of the Ontario Medical Association, and has been perpetuated in Paul G. Wickson's "The Country

College of Physicians and Surgeons Ontario	*Name*	*Grad. M.B. Toronto*	*Other qualifications*	*Practised in*
1872	Macdonald, A. A.	'72	L.R.C.P.S. (Ed.), '73 M.D., '88	Guelph, Toronto.
1874	MacDiarmid, J. L.		M.B., Trin., '74	Brandon.
1875	MacDiarmid, Jas.		M.D., McGill	Hensall.
1871	McKinnon, A.	'71	M.D., '72	Caledon, Guelph.
	MacNutt, G. A.	No rec	ord	
1872	MacLellan, Charles	'72	M.D., '88	Chicago.
1872	Metcalf, W. G.	'73	M.D., '74	Asst. Supt., Asylum, London. Supt. Kingston.
	Minor, S.			Alpena, Detroit.
1871	Moore, C. Y.	'71	Silver Medal Starr Gold Medal	Brampton in 1892.
	Morrow, C.	'73		
1870	Ogilvie, R.	'70		
	Osler, W.		M.D.C.M., etc. McGill, '72	
1872	Peterson, H.	'72		Linwood to 1878. 1892 unknown.
1873	Paterson, C. A.	'74		Streetsville, 1873. Delhi, 1878.
	Reid, Geo.	No rec	ord	
1881	Robinson, Jonathan	'72		Prov. Asylum, married niece of Dr. Workman.
	Reynolds, T. N.	'70	No further r	ecord
1874	Robinson, R. H.	'73	M.D., '78	Toronto.
1870	Rowan, P. J.	'70		Chicago in 1877.
1870	Smith, C. M.	'70	Silver Medal	Owen Sound.
1877	Smellie, T. S. T.		M.A., '71 M.D.C.M., McGill, '77 L.R.C.P.&S. (Ed.), '77	Fergus, Fort William, Port Arthur's Landing.
	Spiers, R. B.	No rec	ord	
1870	Stone, D. F.	'70		Detroit, 1907.
1871	Taylor, A.		M.B., Vic., '71	Londesborough, Goderich.
1872	Standish, Jno.	'70	Silver Medal	Georgetown in 1887-92. Palmerston.
1870	White, John Edward	'70	M.D., '88	Parry Sound, Toronto, Secy. O.M.A., 1881-88.
1872	Wright, F. H.	'72	L.R.C.P., '74	Toronto.
1872	Wilkinson, Arthur	'72	Trin. M.B., Tor., '11	Alliston, Alpena, Mich. in 1892.
1871	Wells, S. M.	'71		Barrie.
	Williams, A. D.	'70	Silver Medal	1920 Tuschen, B.G. (Colonial Hospital).
1874	Whiteman, R.	'74		Angus, 1892 Shakespeare, (Kitchener, 1920).
1872	Wagner, W. J.	'70	Silver Medal Starr Silver Medal	Toronto.
1869	Young, F. H.		Certificate Homœop. Bd. '62	Oshawa to 1878. Picton, died 1915.
	Young, W. H.	No rec	ord	
1872	Zimmerman, R.	'72	M.D., '77 L.R.C.P., '73 Gold Medal Starr Medal	Lect. Anat. Tor. School of Medicine.

Doctor" which hangs in the Academy of Medicine, Toronto.

W. H. Ellis, as Professor of Chemistry, taught successive generations medical chemistry and toxicology.

J. E. Graham, winner of the gold medal and the Starr gold medal, during his postgraduate studies abroad served as a medical officer in the Franco-Prussian War, and as Professor of Medicine in Toronto became one of our greatest physicians.

A. McKinnon, Guelph, did the major portion of the surgery of his district for many years.

Abraham Groves as a country surgeon was a man who had to meet many emergencies, and states in his autobiography that he operated for appendicitis before Fitz, used rubber gloves before Halstead, did blood transfusion in 1871, and first boiled instruments and dressings before an operation in 1874. Arthur Jukes Johnston taught microscopy in his earlier years and became a leader in medical jurisprudence and coroner's work in Ontario. Albert A. Macdonald, still hale and hearty, after graduate work in Lister's wards practised in Guelph and later in Toronto, becoming Associate Professor of Obstetrics and Gynæcology. When Dr. Macdonald had completed his graduate studies and begun practice in Guelph there was much puerperal fever in the community. Practising the principles taught him by Lister and teaching the midwives the essentials of surgical antisepsis, he soon established a local reputation in his obstetrical cases while the older practitioners were still combating childbed fevers, and ascribing the young doctor's success to beginner's luck. Dr. Macdonald well expressed the cause in his oft quoted remark, "It was not Luck it was Lister."

Metcalf not long after graduation, at the beginning of a promising career in psychiatry lost his life at the hands of an insane patient. C. K. Clarke, an associate, was able to overpower the assailant and averted a like fate. F. H. Wright and Zimmerman both brilliant men of great promise, worked in London after graduation at the same time with Osler and A. A. Macdonald; both died young. Zimmerman won scholarships throughout his career and graduated with the gold medal and the Starr gold medal, while John Beattie Crozier won both silver medals.

Alexander Taylor had a long useful and honourable career in practice at Goderich. He with R. H. Robinson was in the first group of house physicians appointed to the Toronto General Hospital, and for many years attended faithfully the annual meetings of the House Surgeons' Association.

OTHER STUDENTS OF OSLER'S PERIOD IN THE TORONTO SCHOOL

Among the students not registered in this year, but who were in the Toronto School about Osler's time, there were a number whose names are familiar to us all and should be mentioned to help complete the picture of the students of this period.

Adam Wright, who was professor of Obstetrics in the University, graduated M.A. in 1866 and M.B. in 1873 with silver medal.

Andrew R. Robinson, who became one of New York's greatest dermatologists, graduated M.B. in 1869, with J. E. Graham at the end of Osler's 1st year. He took his Edinburgh degrees, studied in Paris and served in the Franco-Prussian War.

Oronhyatekha a brilliant Mohawk Indian graduated M.D. in 1868.

F. R. Eccles, one of the founders of the Medical Faculty of the University of Western Ontario, graduated in 1867 with silver medal; of the other founders Hy. Arnott was a classmate of Osler, and W. H. Moorehouse a graduate of Trinity in 1874. The announcement of the Toronto School for 1870-71 records that 9 of its former students were teachers in other Medical Schools in Ontario.

Frank Buller, of Montreal, graduated from the Victoria School in 1869 at end of Osler's first year.

R. B. Nevitt, one of the first surgeons of the N.W.M.P., prominent in the founding of the Women's Medical College was B.A., 1871, and M.B., 1874, with I. H. Cameron.

Wm. Oldright received his M.D. in 1867 the year Osler entered Trinity. Price Brown was M.B., 1869, while Mr. Irving H. Cameron so long Professor of Surgery, and R. S. Brett, who was one of the founders of the Manitoba Medical College and later Lieutenant Governor of Alberta, were graduates of Toronto and Victoria respectively in 1874.

Of John Beattie Crozier, London, England, Dr. E. P. Scarlett wrote delightfully in February this year. A medical philosopher and scholar he graduated M.B. Toronto in 1872 with the Faculty and Starr silver medals, and registered in Ontario that year at Galt. On his 70th birthday Osler was one of a group of his friends and admirers who offered congratulations and expressed appreciation of his services to British scholarship and his unselfish endeavours for human welfare.

In looking through the lists of those granted degrees in arts and law in the University in the years 1870-72, who were undergraduates with Osler we find the names of such men as David Blain, J. G. Hodgins, W. Mulock, J. H. Coyne, R. Harcourt, T. Wesley Mills, F. H. Wallace, J. F. King, W. Houston, R. E. Kingsford, J. Beattie Crozier, F. R. Teefy, W. Dale, F. F. Manly, W. R. Meredith, D. A. O'Sullivan.

The list of Presidents and Secretaries of the Canadian Medical Association is rich in the names of the teachers and students of Osler's time as a student in Trinity and Toronto. Hodder, the first Dean of the Trinity School, was President in 1875, Jos. Workman, Professor of Obstetrics, President in 1877, Wm. Canniff, President in 1880, J. A. Mullin who had charge of Anatomy in the Victoria School in 1870, was President in 1882, with Osler as Secretary until

he became President in 1884, J. E. Graham, a fellow student, President in 1886, James Thorburn, Professor of Therapeutics, President in 1895, Irving Cameron, President in 1898, W. H. Moorehouse, a fellow student who graduated from Victoria in 1874 was President in 1902, and Adam Wright, President in 1909.

Six members of the teaching staff of his time became Presidents of the Ontario Medical Association, as did five of his fellow students, W. H. Moorehouse, J. E. Graham, Adam H. Wright, Wm. Burt and Angus McKinnon, while J. E. White was Secretary for the first seven years and J. E. Graham, Treasurer for five years. R. W. Hillary, Toronto, 1871, was President in 1892.

R. A. Reeve received the high honour of the Presidency of the British Medical Association.

Osler's last appearance in Toronto halls as a student would appear to have been in 1871, when he must have come up from McGill to write the Primary Examination in Medicine at the University of Trinity College, for his name is in the list of students who successfully passed this examination in April, 1871.

The April Examinations of 1871 saw the entry of women into medicine in Ontario, with the names of Emily H. Stowe and Jenny K. Trout appearing in the list of those who had successfully passed the Matriculation Examination of the College of Physicians and Surgeons, Ontario.

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CATECHISM IN MEDICAL HISTORY

(The following questions and answers have been prepared for us by Dr. Heber C. Jamieson of Edmonton. We hope to continue the column for some months, and will welcome any additions to it from our readers.—ED.)

Q. What was the origin of the common expression "Quid pro quo"?

A. Name of a book by Nicholaus of Salerno in 1140, in which there is an alphabetically arranged list of equivalent drugs.
Same author wrote "Antidotarium" in which the apothecaries' weight is stated.
Here is his description of the soporific sponge (Spongia somnifera) which was the mediæval anæsthetic. "Take of opium of Thebes one ounce, juice of hyoscyamus, juice of unripe blackberries, juice of hemlock, poppy capsules, juice of mandragora, juice of wood-ivy, of each one ounce. Put all these into a vessel together with a new sponge which is just as it came from the sea and has not been in contact with fresh water. Place the vessel in the sun during the dog-days until all (the ingredients) are consumed. When the sponge is needed, moisten it with a little hot water and apply it to the patient's nostrils and he will quickly fall asleep. When you wish to rouse him, apply the juice of fennel-root, and he will soon wake."

Q. To what physiologist do we owe one of the most indispensable of public utilities of today?

A. Alexander Graham Bell (1847 - 1922). Graduated at Edinburgh University and University College, London. Emigrated to Canada in 1870 and later was Professor of Physiology at Boston. He was the inventor of the telephone.

Q. What surgeon is said to have performed two hundred amputations in one day?

A. Dominique Jean Larry (1766-1842). "Baron Larry", French military surgeon who served with Napoleon. He invented a light vehicle for the removal of the wounded from the battlefield. It was known as a "flying ambulance".

Q. A well-known medical prescription was introduced by a famous buccaneer and physician over two hundred years ago. Who was he?

A. Thomas Dover (1664-1742). Sailed as second captain and captain of Marines in the *Duke* belonging to the Merchant Adventurers of Bristol. He brought back Alexander Selkirk, the original of Robinson Crusoe. He was the originator of Dover's Powder (pulv. ipecac. et opii).

Q. What English clergyman made the first great advance in the physiology of the circulation after William Harvey?

A. Stephen Hales (1677-1761). By fastening a long glass tube into the artery of a horse, Hales devised the first manometer or tonometer, with the aid of which he made quantitative estimates of the blood pressure, the capacity of the heart, and the velocity of the blood current. He was also the originator of artificial ventilation.

Q. Who was the founder of modern military medicine and the originator of the Red Cross idea?

A. Sir John Pringle (1707-1782). He laid down the true principles of military sanitation. He named influenza. In 1742 he made the suggestion that the military hospitals of both the French and English armies should be neutral and immune from attack. This rule remained loosely in force till the Geneva Convention in 1864.

Association Notes

THE PROGRESS OF THE ASSOCIATION*

BY DR. A. E. ARCHER

I am deeply conscious of the honour which has just been conferred upon me at your hands. No one is more aware than I, of the fact that there are many of my Alberta colleagues, upon whom this honour could more properly have been conferred. I know of only one sufficient reason for your action and that is the desire of the Canadian Medical Association to do honour to a group of their members across Canada, whose life work has been carried on in the smaller communities. To these many men, whose work is often so arduous, so crowded with important professional decisions, calling for so much independence of thought and action, and so vitally necessary to the welfare of our country—you seek to-night to do honour. The late Lord Tweedsmuir spoke wisely of these men when he called them the "Shock Troops" of the profession.

In assuming this office to-night, I would remind you of the fact that through the years the Canadian Medical Association has in its wisdom built for itself a constitution which places more and more power in the hands of its General Council and less and less in the hands of its executive officers. At this moment I am deeply impressed by this evidence of the wisdom of our predecessors. To-night I will ask you to consider for a few minutes a few things which arise from the circumstances in which we find ourselves, from the fact that we are at war; from the historical interest which is attached to this particular meeting; and from the nature of the immediate problems which lie before us.

Amid the peace and beauty of this mountain retreat it is hard to realize that our beloved country is engaged in a tragic and gigantic war effort. The most urgent problem confronting our profession is our responsibility under these circumstances to our fellow Canadians whose health is, at this time, our major concern. The field of this responsibility includes: the growing host of Canadians in the various armed services; the host of Canadians in our madly accelerating industrial enterprises; the anxious over-worked leaders in many communities bearing special burdens and subject to intensified strains; and the workers on the farms, in the mines, in the forests, and in fishing villages, scattered communities from which the already inadequate medical personnel has been still further and often dangerously withdrawn.

There are, in our various armed services, a total of 2,063 medical men now in the various uniforms of their country; around 20% of our total. We are told that this number must be immediately augmented. The army alone could use 200 additional medical men. This war work must be done; and we feel, first, our responsibility to these fighting services, for whom we must build up an organization which will be sufficient to meet urgent conditions which may lie close ahead. We are convinced that our men will meet this emergency as they met the emergency in 1914-18, when about 38% of the medical practitioners of Canada were in the service of the armed forces. From that too recent experience, and from the experience of our confrères in Great Britain, we have learned enough to enable us to handle this problem, or rather these two problems, concurrent civilian medical services, and war medical services.

At the outbreak of war, your executive, on your behalf, offered every co-operation to the Government in its task of providing expert medical care in the selection of fighting personnel and for the provision of adequate medical services. The relations between our committees, set up at the outbreak of war, and the responsible military officers across Canada, have been and are most cordial and something of value has been accomplished. Perhaps the greatest immediate problem is to get, for the armed services, not only enough men, but the proper men, and at the same time to keep sufficient suitable medical personnel at vital key points in Canada, in our medical faculties and important centres of population, and in the isolated areas where often several thousands of our people are dependent entirely for their medical services on a single man. In the opinion of many, the time has come when consideration should be given to securing or extending facilities for the careful selection and distribution of medical man power. Whenever steps are taken to implement such a policy, our organization is in a position to render most valuable co-operation and assistance and our offer of all-out-aid stands, and you would want it to stand.

This meeting is on the occasion of the 75th anniversary of the organization of the Canadian Medical Association and it is fitting that we should recognize this historic occasion. That same year was the year of Confederation and one man, familiar to us all as one of the Fathers of Confederation, has been less well known to us as the first president of this Association; I refer to the Hon. Sir Charles Tupper. He had much to do with the bringing together in one organization of the medical men in the new Dominion.

We have had in all, sixty-nine presidents and you will be glad to know that 20 of these are still living and helping more or less actively in the affairs of the organization.

In order to understand our problems to-day, it is helpful to recall the extent and revolutionary nature of the changes which our professional work has undergone in this short period. But to-night, it would not be proper to more than name a few of the more important of these, and I do this because of its historical interest and also because some of our problems arise naturally from the nature and extent of these changes.

Seventy-five years ago diagnosis was made almost solely as a result of a careful history and a physical examination and by shrewd clinical judgment. The results were often amazing. There was absolutely no diagnostic apparatus available and none at all in general use except the stethoscope, and for the more progressive, a tablespoon or crude test tube for boiling, as a test for albumin. There was a clinical thermometer, but it was only in that year that a Viennese physician first ordered his patients' temperatures recorded daily as a routine procedure. Our confrères then had no dream of the x-ray which is now so intricate and in many fields so accurate. There was no biochemistry, no instrument to measure blood pressure. There was no modern hospital. There were only around four hundred hospital beds in all Canada, not as many as are in each of a score of hospitals to-day. Public ward rates were around 75 cents per day as opposed to a cost of

*Delivered on the occasion of taking over the office of President of the Canadian Medical Association, Jasper Park, Wednesday, June 17, 1942.

3 to 4 dollars per day. There was no staff organization, no specialization in the sense of a restricted field of work, no elaborate team work between our men.

There was no knowledge of the cause of sepsis. That knowledge came later with Lister. There was no preventive medicine as such, the only entry in that field was Jenner's vaccination for the control of smallpox. There was no modern surgery, no accepted anæsthesia. The first appendectomy had yet to be done. But why go on?

The years since our founding have been revolutionary and the value of our services to our patients has increased many times, but—and this we do not always remember—the costliness, the necessary costliness of everything connected with modern programs for the prevention of disease, with its diagnosis, and with its treatment, bears little relation to the costs which existed even two or three decades ago. It has been truly said, that the extent and value of our medical knowledge is at least twenty years ahead of the facilities which have been provided for making this knowledge and these services available to all the people; and this creates the problem. To have stepped in a short seventy-five years from the simplicity and blind groping for truth of Sir Charles Tupper's day to the complexity and specialization of the present age, is a degree of rapidity of growth which must be attended with some problems; and some or many of the maladies of our organized medicine, may properly be considered as "growing pains".

Why review this now? Because apart from the proper interest which we may have in such considerations on this anniversary, it has a special interest, inasmuch as some of our problems, particularly our economic problems which are uppermost in our minds to-day, are intimately associated with these rapid and revolutionary changes which the last three generations of medical men have seen. Why do I emphasize this? Because I am convinced that the public whom we serve, are more aware of the increased cost of medical care than they are of the simultaneously increased accuracy and value of these services.

I am convinced that it is partly because of this increased cost that so many organizations and individuals are seeking hopefully for some means of assuring for themselves full medical services as may become necessary, by some pre-payment scheme of health insurance or similar development. We are flooded with various schemes for medical contracts and pre-payment schemes for medical and hospital services, most of them shockingly inadequate. I am convinced that it is time for this organization to face squarely the issue raised by this growing clamour, the extent of which is made clearer by each renewed poll of public opinion.

We realize more or less clearly that changes must come, that some changes are desirable indeed. We talk in generalities of a reorganization of society, of post war planning, of rehabilitation, of a new world to come. Is it likely that in these changes, this fundamental problem, dealing with so vital a matter as health services, will not rank high in the list of those things for which public demand will be made? Many think that this agitation will crystallize in some form of health insurance, about which you have heard so much during this last year.

Whether this is the form which development will take, or whether it will be along some other line of socialized medicine or some less radical method at this time, I crave for the Canadian Medical Association a position of real leadership in these discussions during the years which lie ahead of us—and this is not for selfish reasons. Our profession is the only group with the special knowledge necessary for the solution of this problem and it is in the public interest that their voice be heard. Our Association has from time to time adopted resolutions outlining certain principles which should be incorporated into any scheme of health insurance, if and when such a scheme is proposed. Is it not probable that we should, at this time, go farther and define and state a policy? We are faced with some definite demonstrable facts. I think it will be agreed that the accuracy and value and extent of our knowledge and the resultant services has increased many fold during the last few decades.

It will be agreed that for a considerable section of our people across Canada these services are *not* available except on the basis of charity.

It will be agreed that the distribution of these services is very unequal. The natural tendency to centralization of medical services has been over done. Services 100 miles away from a district cannot be said to be available for practical purposes to certain types of cases.

If we are agreed on these facts, they surely constitute for us a definite challenge and demand clear thinking and wise and definite decision. If any post war plan is to be evolved, it must be an advance, not a compromise born of emergent necessity. Nothing of real value which has come to us from the past must be sacrificed. Any plan to be acceptable must make possible within it an extension of services, not their curtailment. Even if the fullest services cannot be immediately obtained, they should be visualized and contained within any acceptable plan. For the part of the population included within a plan the services proposed and made available should be complete. Whatever is proposed to be done, should be done properly, to gain our approval.

Is it not possible, that a very important contribution to post war reconstruction could be made by our Association, if we at this time express our willingness to assume leadership in this discussion, and if we can state that we are convinced that the time has now come when some scheme should be devised to make the full benefits of complete medical care available to all the people, at a price which is fair to all the people, including those rendering the services; provided always that any such scheme should be so organized that it would permit and foster active progressive development of the science and art of medicine. And if we agree to this, and have said this, we should then actively engage in the task of helping to design a new medical service for Canada, evolving from, and true to, our great heritage of the past.

One more word. If we are to do our full duty in the years ahead we need, more and more, a strong organization. We are the only organization of medical men which pretends to speak for the whole of Canada. The organization within the various provinces varies considerably. We are each seeking to strengthen the hands of the Dominion Organization by different means. There never was a time when it was so essential that there be a strong organization to speak for the profession and in the public interest, wherever its voice should be heard. This is indeed our hour of opportunity. Knowing that this great organization is behind its officers, I am confident, as I look ahead. There may be problems but there will also be solutions. We possess fundamental strength; the strength which comes from disinterested motives and a high ideal of service. We belong to a profession whose chief concern is with the problem of survival, and in the words of the Earl of Athlone "It is well to remember in these times that in the long run it is always the forces in a race that tend to survival which win out over those powers which tend to its destruction".

The General Secretary's Page

When I stepped off the train at Jasper Park on Friday, June 12th, the following telegram was handed to me:

"Please permit me to thank the Canadian Medical Association for their fine co-operation and assistance in the procurement of physicians for the armed forces. Your recent medical survey cards for war purposes have been placed in the records department under the Adjutant General. They have been indexed, coded, tabulated and broken down into districts, specialists, time available, ages, etc., and are now being studied for immediate utilization. Four thousand six hundred and fifty-eight physicians have signed these cards. Of these, fifty years and under, 871 have signified their desire to enlist: 305 in this age group are ready to go into medical service immediately. The balance, 566 desire to enlist within one to three months.

Kindly appoint a Canadian Medical Association Central Advisory Committee of five members to sit as members of a (Canadian Medical Procurement and Assignment Board for Physicians) Committee, with the medical heads of the Army, Navy, Air, Pensions and National Health, National War Services and National Selective Services. This Committee has received official approbation and only awaits the names of your Committee to notify all members of place and time of the first meeting. In these perilous times we know we can anticipate in the future the same wholehearted help and practical interest which your Association has generously given in the past. May your Seventy-third Annual Meeting be most successful.—J. L. Ralston, Minister of National Defence."

Inasmuch as we had some months previously brought to the Minister's attention the plan for procuring and placing doctors which is in effect in Great Britain and which in some respects is also operative in the United States, we were naturally pleased to receive the Minister's announcement and his invitation to co-operate.

On the recommendation of the Executive Committee, the General Council by unanimous vote instructed me to reply to Col. Ralston as follows:

"Canadian Medical Association in annual session assembled desires to thank you for your cordial greetings and instructs me to say that we accept your invitation to appoint a Canadian Medical Association Central Advisory Committee of five members to sit as members of a Canadian Medical Procurement and Assignment Board for physicians. Expect appointments will be made this week and names forwarded immediately to you."

Before the meeting adjourned, I informed the Minister of our appointments by the following wire:

"Canadian Medical Association representatives on Canadian Medical Procurement and Assignment Board are as follows: Doctors A. E. Archer, Lamont; F. S. Patch and Léon Gérin-Lajoie, Montreal; T. H. Leggett, Ottawa, and T. C. Routley, Toronto."

Upon returning to Toronto, a message awaited us from the Adjutant General, Major General Letson, advising that the first meeting of the Canadian Medical Procurement and Assignment Board for physicians would take place in Ottawa on July 6th. All our appointees agreed to be present.

It is our firm belief that the medical profession of Canada both within and without the armed services will read this page with interest and satisfaction.

There is no profession or calling which has quite so many interests and objectives in common as the medical profession; and there is no group in Canada which more earnestly desires to do its full share in Canada's war effort. By virtue of this new Board, there is reason to hope and expect that all the medical needs of the fighting services will be met promptly and efficiently, while at the same time civilian medical needs will not be left to chance and circumstance. Knowing exactly what the needs are and are likely to be in all the Services, the Board can act as a clearing house for all medical personnel, which would appear to offer advantages over the present system whereby each Service acts independently of the others.

Attention should also be called to the figures presented in the Minister's telegram regarding the recent survey made by the Association in respect to Canada's medical man power.

The offers of service suggest that there are presently available quite as many doctors as the Navy, Army and Air Force require; but care must be exercised in accepting and placing these doctors. The Canadian Medical Procurement and Assignment Board has a real job to do and no doubt need be entertained regarding the desire of the medical profession of Canada to measure up to its responsibilities when shown clearly and convincingly what those responsibilities are.

Medical War Relief Fund

Further subscriptions to this fund, which is under the direction of the British Medical Association, have been received from the Saskatchewan Division and amount to $75.00.

The following additional acknowledgment has been received:

Dear Dr. Sclater Lewis,

Once more I have to tender you many thanks for your letter of May 15th enclosing a draft for $1,165.12 (£260.13) being contributions from various organizations in Canada towards the above Fund. We are very grateful for all your help. I enclose an official receipt herewith.

Yours sincerely,

G. C. ANDERSON,
Honorary Treasurer,
Medical War Relief Fund.

London, W.C. 1,
June 20, 1942.

Divisions of the Association

The Annual Meeting, Ontario Medical Association, 1942

The Sixty-second Annual Meeting of the Ontario Medical Association was held at the Royal York Hotel, Toronto, May 25th to 29th. This was a very well attended meeting, considering the fact that we are in the third year of the war: 625 doctors registered for the scientific sessions at the Hotel and 398 tickets were issued for the hospital clinics which were held each morning.

The Council meeting was attended by representatives from nearly all branch societies in the Province, and in addition to receiving detailed reports from various committees, a new schedule of fees was adopted, and an agreement regarding the provision of home and office care to old-age pensioners, blind pensioners, and mothers' allowance cases, was approved. The Council voted in favour of proceeding immediately with the Banting Memorial Fund, and voted to extend membership, without the payment of fees, to all Ontario doctors on active service.

The Committee on Education was authorized to proceed with its plan for a more extensive post-graduate program. The intention of the Committee is to organize courses lasting several days in the various clinical centres throughout the Province. The name of the Committee on Medical History was changed to the Committee on Archives in order that there might be conformity with the setup of the national body.

The following Officers and Chairmen of Standing Committees were appointed: *President*—Dr. H. M. Yelland, Peterborough; *President-Elect*—Dr. F. A. Brockenshire, Windsor; *Chairman of Council*—Dr. H. M. Torrington, Sudbury; *Honorary Treasurer*—Dr. Carl E. Hill, Lansing; *Finance Committee*—Drs. S. J. Streight, Toronto, W. F. Plewes, Toronto, J. P. Morton, Hamilton, Carl E. Hill, Lansing (Chairman), H. M. Torrington, Sudbury *(ex-officio)*.

Dr. J. L. McDonald, Toronto, *Advisory Committee to the Ontario Society for Crippled Children.*

Dr. W. V. Johnston, Lucknow, Chairman, *Committee on Archives.*

Dr. R. K. Paterson, Ottawa, Chairman, *Committee on Benefit Fund.*

Dr. J. H. Geddes, London, Chairman, *Committee on By-laws.*

Dr. J. H. Elliott, Toronto, Chairman, *Provincial Editorial Committee*; Chairman, *Committee on Necrology.*

Dr. G. Stewart Cameron, Peterborough, Chairman, *Committee on Cancer.*

Dr. Harris McPhedran, Toronto, Chairman, *Committee on Consultations;* Chairman, *Committee on Legislation;* Chairman, *Military Advisory Committee.*

Dr. A. J. Grace, London, Chairman, *Committee on Credentials and Ethics.*

Dr. Beverley Hannah, Toronto, Chairman, *Committee on Epidemics.*

Dr. G. L. Bird, Oshawa, Chairman, *Committee on Industrial Medicine.*

Dr. W. S. Caldwell, Toronto, Chairman, *Committee on Inter-relations and Medical Economics.*

Dr. O. W. Niemeier, Hamilton, Chairman, *Committee on Medical Education.*

Dr. G. F. Boyer, Toronto, Chairman, *Committee on Medical Evidence.*

Dr. R. P. Smith, Timmins, Chairman, *Central Medical Welfare Committee.*

Dr. J. W. Reddick, Toronto, Chairman, *Committee on Periodic Health Examinations.*

Dr. C. D. Farquharson, Agincourt, Chairman, *Committee on Public Health.*

Dr. C. C. White, Chatham, Chairman, *Committee on Tariff.*

Dr. H. D. Logan, Lindsay, Chairman, *Committee on Voluntary Health Insurance.*

Dr. M. H. V. Cameron, Toronto, Chairman, *Committee on Workmen's Compensation Board.*

Central Medical Welfare Committee.—Chairman—Dr. R. P. Smith, Timmins. District Chairmen—District No. 1, Dr. R. E. Holmes, Windsor; District No. 2, Dr. A. B. McCarter, Guelph; District No. 3, Dr. C. A. Gaviller, Owen Sound; District No. 4, Dr. P. B. Macfarlane, Hamilton; District No. 5, Dr. G. L. Macdougall, Whitby; District No. 6, Dr. W. S. Fitzpatrick, Peterborough; District No. 7, Dr. J. S. Delahaye, Kingston; District No. 8, Dr. C. W. Kelley, Ottawa; District No. 9, Dr. W. J. Cook, Sudbury; District No. 10, Dr. R. B. M. Coulson, Port Arthur; District No. 11, Dr. W. C. Givens, Toronto.

Board of Directors Representatives.—Drs. C. J. Devins, Aurora, Carl E. Hill, Lansing.

Executive of the Medical Welfare Board—Drs. R. P. Smith, Timmins, W. C. Givens, Toronto, C. J. Devins, Aurora, Carl E. Hill, Lansing, R. E. Holmes, Windsor.

By a unanimous vote, Dr. C. J. Copp, of Toronto, was elected a Life-Member of the Association.

The annual golf tournament was held at the Royal York Golf Club, with the following result:

First Flight (1-14)—Dr. R. E. Davidson, Toronto (80-10) 70 low gross. Dr. A. R. McGee, Toronto (87-10) 77 1st low net. Dr. W. C. Givens, Toronto (91-10) 81 2nd low net.

Second Flight (15-20)—Dr. F. B. Thornton, Toronto (87-18) 69 low gross. Dr. J. B. Maxwell, Toronto (87-18) 69 (won cup). Dr. Leslie Black, Toronto (91-20) 71 1st low net. Dr. J. W. Aikenhead, Toronto (91-18) 73 2nd low net. Dr. R. D. Lane, Toronto (91-18) 73 3rd low net.

Third Flight (21-27)—Dr. I. P. Campbell, Durham (100-22) 78 low gross. Dr. J. A. Evans, Toronto (102-25) 77 1st low net. Dr. W. V. Johnston, Lucknow (107-24) 83 2nd low net.

Dr. J. L. Hall, Toronto (108-22) 86 3rd low net.

Fourth Flight (28-30)—Dr. W. L. Christie, Toronto (102-30) 70 low gross. Dr. R. M. Jewell, Toronto (102-30) 72 1st low net. Drs. J. Y. Ferguson, Toronto (103-28) 75 and E. Pugh, Toronto (105-30) 75 2nd low net.

The Hamilton Cup.—Drs. F. B. Thornton (87-18) and J. B. Maxwell (87-18) Net 69—Tie. On toss of coin, the Cup was won by Dr. J. B. Maxwell.

The London Academy of Medicine Trophy was won by the Toronto East Medical Society team composed of: Drs. W. C. Givens (91-10) 81. A. R. McGee (87-10) 77, R. E. Davidson (80-10) 70, W. C. Everist (97-16) 81. York County Medical Society was the runner-up.

The place of meeting of the next annual convention was named as Niagara Falls, Ontario.

Tentative District Meeting Dates. — District No. 1, Chatham, October 6th and 7th. District No. 2, Seaforth, September 30th. District No. 3, Walkerton, October 14th. District No. 4, St. Catharines, October 21st or 28th. District No. 5, Oshawa, October 22nd. District No. 6, Peterborough, October 23rd. District No. 7, Gananoque, September 23rd. District No. 8, Ottawa, September 24th. District No. 9, North Bay, September 11th and 12th. District No. 10, Port Arthur-Fort William, September 9th. District No. 11, Toronto (date to be announced later).

J. W. McCUTCHEON,
Assistant Secretary.

Medical Societies

La société médicale des hôpitaux universitaires de Québec

La séance de la Société Médicale des Hôpitaux Universitaires de Québec, eut lieu le 6 mars, 1942, à l'Hôtel-Dieu de Québec. Ici suivent les résumés des presentations.

GOITRE À LA PUBERTÉ.—Pierre Jobin.

L'auteur rapporte l'observation d'une jeune fille qui, à l'époque de la puberté, présente simultanément un goitre exophtalmique, de l'asthme, de l'épilepsie et de l'eczéma. Il émet l'opinion que le traitement de l'un quelconque de ces syndrômes aurait une chance d'améliorer tous les autres à la fois car l'influence du sympathetique parait ici manifeste, comme dans toute réaction pluriglandulaire. Il traite le goitre et tous les syndrômes sont guéris en moins d'un an.

CHOLÉCYSTITES AIGUËS—Jacques Turcot.

1er groupe: Cholécystite aiguës avec péricholécystite intense: 2 cas à peu près identiques qui furent opérés et subirent une cholécystostomie. Guérison.

2e cas: Mucocèle infecté: Signes cliniques marqués. Grosse masse à l'hypochondre droit, avec tension et douleur. A l'opération on ne trouve pas d'adhérences: cholécystectomie. Suites opératoires très bonnes.

3e groupe: Un cas de gangrène du fond de la vésicule. Clinique: syndrôme aigu de l'étage supérieur de l'abdomen. Cholécystectomie.—ET un cas de perforation qui s'était enkystée secondairement entre le côlon transverse, le foie, et le ligament rond. Cholécystostomie. La précocité de l'opération est admise partout. La cholécystostomie est à conserver quand il y a bien des adhérences et un mauvais était général. La cholécystectomie se pratique sur une grande échelle dans les bons cas et dans les cas de gangrène. Le drainage de la plaie est recommandé dans les cholécystites aiguës.

CONSIDÉRATIONS SUR LE STRABISME CONVERGENT.—Jean Lacerte et Emile Pelletier.

Le strabisme convergent est la plus fréquente des déviations oculaires. Son mode de production, l'âge où il apparait, le moment le plus opportun de sa correction, le choix d'un traitement approprié, l'opération ayant le plus de chance de succès font qu'il peut être étudié sous plusiers aspects.

Certaines notions sont essentielles dans l'étude du strabisme convergent: soit l'accommodation, la convergence, l'hypermétropie infantile, la faculté de fusion, les obstacles à la vision binoculaire, l'anatomie et la physiologie des muscles extra-oculaires. Il y a surtout deux grandes variétés de strabisme convergent: (*a*) monoculaire, (*b*) alternat. Les méthodes d'examen sont nombreuses et demandent beaucoup de précision.

Dans le traitement du strabisme convergent, l'on ne doit pas négliger l'état général. La correction à l'aide de verres, l'occlusion de l'œil fixateur, le développement de la vision binoculaire, sont des moyens utiles dans la correction du strabique. Si après environ six mois ces derniers moyens ne donnent aucun résultat ou un résultat insuffisant, il faut dès lors, sans attendre plus longtemps, intervenir chirurgicalement. L'on ne doit pas hésiter à opérer un strabique même au cours de la quatrième année lorsque les mesures non chirurgicales sont insuffisantes.

Les méthodes chirurgicales sont nombreuses. Le reculement du droit interne avec insertion sclérale de manière à conserver la concergence, associée, suivant les cas, à une résection avec ou sans avancement du droit externe donnent généralement de bons résultats. S'il y a une déviation verticale en plus, l'on peut suivant les circonstances, pratiquer une ténotomie du muscle oblique inférieur.

En conclusion, le strabisme est un problème de l'enfance.

ERYTHRÉMIE.—Richard Lessard.

L'auteur rapporte une observation typique d'érythrémie ou maladie de Vaquez-Osler. Il s'agit d'un homme de 52 ans, qui est venu consulter pour des fourmillements et des crampes douloureuses dans les membres inférieurs. L'examen somatique révèle la présence d'une splénomégalie solitaire. L'hémogramme donne: 6,776,000 globules rouges et l'hémoglobine est à 146 pour cent. Les globules blancs sont au nombre de 10,428.

Le teint du malade n'est que très légèrement érythrosique mais on note des taches purpuriques au niveau des jambes. Le sujet a été soumis à la roentgenthérapie avec une amélioration peu importante.

LE PRURIT VULVAIRE.—O. Garant.

De tous les prurits partiels, le prurit vulvaire est probablement le plus fréquent. On le rencontre à tous les âges, et principalement durant la période d'activité génitale chez la femme. La symptomatologie et le diagnostic positif en sont des plus simples, mais il est beaucoup plus difficile de découvrir la cause locale, générale ou réflexe qui déclanche la crise prurigineuse.

Avant la puberté, ce sont les vers intestinaux qui habituellement cause du prurit. Chez la femme, toutes les maladies génitales et même les règles peuvent en donner. Après la ménopause, c'est surtout à la suppression de la fonction ovarienne qu'il faut attribuer les démangeaisons vulvaires.

Le traitement consiste à calmer d'abord le système nerveux, et ensuite la démangeaison. Deuxièmement, donner une médication désensibilisante, telle que l'hyposulfite de soude en injection intra-veineuse; enlever du régime tous les mets excitants, et enfin traiter la cause qui déclanche chaque crise.

"I Swear by Apollo"

BY J. C. HOSSACK

Winnipeg

[We print in part the Presidential address of Dr. J. C. Hossack, to the Winnipeg Medical Society, May 15, 1942. Dr. Hossack's remarks deserve the widest possible audience, both for their content and their form. The full text is to be found in the *Manitoba Medical Review*, June, 1942.—ED.]

It is customary for those who are nearing the term of their days to turn their thoughts to that part which they deem immortal. During the past months we have had much to say about what might be called the body of medicine—that part of it that grows and develops and changes. Now, in the dying minutes of this session let us consider the immortal part of medicine—its spirit.

Had I a magic carpet whereon I could transport you through time and space, I would take you back over two thousand years and set you before a Greek temple. There you would see white-clad youths with eager and earnest faces chanting in solemn unison "I swear by Apollo." . . .

An oath similar to this is to be found on the walls of countless consulting rooms. We call it the Oath of Hippocrates, but we know that it was old when Hippocrates was young; nor was it altogether new when Imhotep, 4,000 years ago, stepped forth from the dim mists of antiquity—the first physician whose name we know. Indeed in every ancient civilization of which we have record, physicians have been bound by almost identical oaths. The sentiments so expressed must therefore be regarded as the essence of medical practice, the spirit of medicine.

Now, while every practitioner is aware of the existence of the Oath, and many are familiar with its wording, not all realize its significance. It is the ethical basis of a profession in many ways unique. Because we are so busy practising it we do not appreciate the uniqueness and singularity of medicine —let me, then, remind you of it. . . .

The fact is that we have more in common with the doctors of enemy countries than we have with our next-door neighbours. The purpose and mission of all doctors everywhere is the same—to make life longer, healthier and happier. Their interest is a universal one. They do not limit their efforts to benefit one race only, one single country. They pool their knowledge so that all humanity may benefit. Their outlook is completely international. . . .

We are bound by a common ideal and a common creed, both of which are peculiar to our craft. We are further set aside from our neighbours by what one may call the mystery that we practise. Medicine is definitely a mystery to the layman. No lay person can understand the processes and vagaries of disease. No layman can understand the rationale of treatment. He cannot see as we can see the obstacles and handicaps that retard and defeat our efforts. He can neither comprehend nor appreciate our work, nor can he judge of it. Yet these facts do not deter him from sitting in judgment upon us; weighing us in his lop-sided balance and, too often, finding us wanting. The fact is that no one can properly assess a doctor's ability or even his honesty, except another doctor. Indeed the layman's ignorance is so great and his judgment so fallacious that he sees little to choose between orthodox and irregular practitioners. . . .

Unfortunately, this ignorance and lack of discernment on the part of laymen leads them to be suspicious of us. It is instinctive in human nature for people to fear and distrust that which they do not understand; individually, each may, and does, regard highly the one or two doctors he has come to know and trust. But the body of the profession remains strange and therefore baneful. The laity cannot separate what is good in treatment from what is bad. Nor can they appreciate altruism. They find it hard to believe that the laws against irregular practice are for their own protection. They see in these a subtle way of getting rid of competition, a form of persecution. They read stories about medical black sheep and think the whole flock must be black. So has it been for ages. The few nice things said about doctors in the Bible are found in the Book of Ecclesiasticus, which was written by a doctor. The classical authors vied with each other in traducing the profession. Pliny and Juvenal found more to praise in the quacks than in the orthodox physicians of their times. In every age it was the same, although now we find authors who can praise us as well as those who have only blame. The profession as a whole has never been popular. This misunderstanding of our aims, actions and ideals tightens the embrace in which we are already folded by the arms of purpose and greed.

These three things, a common ideal, a common creed, and popular misunderstanding—make us a body singular and unique; an ethical body whose spirit is the Oath. One might expect this ethical union to be reflected in an economic or political union. Many laymen are firmly convinced that such a union does exist. Indeed they speak of it as if the strongest labour unions were weak by comparison. Again they misinterpret the facts and assume that action in common is the result of executive command instead of being the spontaneous result of a common interpretation of our principles.

Our cohesion, strong in the ethical sphere, is strong nowhere else. Medicine is such a personal thing, doctors are so individualistic, that they tend to remain in isolated units. Each one wants to conduct his business in his own way without any outside guidance. He is jealous of his prerogatives, proud of his independence, and unwilling to see them touched. But the prerogatives and independence which he prizes so highly, which for centuries have seemed to be inviolable and external, are no longer secure. Changes in the world about us have brought medicine out of its seclusion and into the social and economic fields. The importance of national health has made medicine important in a new way; and now for perhaps the first time in our history our chief problems are economic and political.

And these are the problems we are least prepared to meet. Our tradition, our altruism, the nature of our work and our attitude towards it tend to make us politically disparate while the present trends demand that we be united. Two trends in particular affect us: the growth of public health services and the socialization of medicine.

Preventive medicine is chiefly responsible for the increased longevity that mankind now enjoys. It has removed many things that threatened and destroyed life in the past. It has been most successful in the hands of those who are interested in people as a whole and not as individuals. Little by little its scope has extended and continues to extend. It now infringes more than ever on private practice. Patients go in larger numbers to government, municipal and hospital clinics for inoculations and treatments that they used to get privately. During the past months I have been told of many instances where well-to-do people have taken advantage of this free service. Some doctors find this a cause for concern. They are afraid that what, at the moment, only pinches them gently may, later on, grip them harshly. They question if it is necessary to do so much for so many for nothing. They fell that they should not be excluded

from the preventive field unless some other is opened to them.

Thus preventive medicine offers a certain threat; a second one lies in socialized medicine. The socialization of medicine is coming as surely as tomorrow's dawn. It is the natural result of public demand for adequate, complete, medical service. Under ordinary circumstances complete diagnostic and therapeutic care is so costly that only the very rich and the very poor can afford it. Those of limited means must too often be content with a minimal research into the nature of their ailments. This obviously is not enough, either for doctor or patient. It is pleasant to see a way of escape from the prison of disease but grievous to find the way barred by a portcullis of insufficient means.

The high cost of medical care has led people to form health groups in which they get reasonably wide service at small cost. These groups have caused a good deal of concern. They draw their members from other practices. They have proved popular and successful, and as they threaten to become more numerous, anxious practitioners worry about the effect upon themselves. They see their patients leave to join one group or another. They visualize the community cut into sections like a pie, with themselves licking hungry lips.

Yet no one can deny the desirability of inexpensive and complete medical care for all—some plan that will include everyone, the indigent as well as the better-off. No wonder then, that state medicine looms up in the offing. It is the only solution. State medicine is coming. It is almost here. How will this drastic change affect our ethical body and its ancient, vivifying spirit?

How it will affect us will depend upon how active we are in our own interests. We cannot expect legislators to look at things as we do. They are influenced by the layman's ideas and prejudices. Distrust begat by ignorance, the fear of establishing a medical monopoly, perhaps a solicitude for those who practise methods we do not countenance; these motives may lead them to oppose what we believe and know is proper for the public good and our own protection.

When legislation comes to be discussed it will be laymen who will have the chief say. We must not forget that to all laymen, whatever may be their rank and prominence in other spheres, medicine is a mystery which is sealed to them. In our desire, or need, for lay support, we must remember that otherwise intelligent laymen are blind to what is false and what is true in matters of health. By many who should know better the impostor is prized and the man of virtue taxed. We cannot trust our fate and our fortunes in such hands; we can trust them in no hands but our own, and so, these hands must be made strong.

Some months ago when I was busy in the gathering of new members, quite often a prospect would say: "What good is the Winnipeg Medical to me? What will I get out of it?" To these I would say: It is worth nothing to you and you will get nothing out of it until you first of all put something in and that something is the strength of your membership. Strength of numbers is essential.

But our district is only part of the Province and a very small part of the Dominion; only if every district society and every Provincial association were equally strong, would it be possible for Provincial and Federal Presidents to speak in that same clear voice of strength and not, as now, in the whisper of weakness. What has been done by our society can be and should be done throughout the Dominion. The uncertainty of the future can be met with greater equanimity if we are sure of ourselves. Where our path may lie in the years ahead no one can tell, but this is certain—if we are organized and united and agreed, it will be a path of our own choosing and not one into which we are driven by circumstances over which we have lost control.

It is true that in times past we have united to face some great threat and therein shown our strength, but no sooner had the threat been removed than the temporary union was dissolved. Against minor threats there has been no union. Practitioners contending against conditions that are obviously, grossly, unfair, can turn to no one for help in their fight. They are therefore indifferent towards Associations which appear to be indifferent towards them; a dangerous indifference on both sides.

For their part the Associations feel that they have a claim on the loyal support of all the profession. But loyalty is not a thing which can be demanded, or taken for granted. It is given only to those who deserve it. It is in a sense payment for services rendered by the governors to the governed: and, as it is with individuals, so is it with Associations—they profit most who serve best. The Provincial and federal Associations do not enjoy that loyalty and support which must always be their principal source of strength. A reason for this is, I think, the fact that they stand remote from most of us. They do not bring their affairs into our bosoms and business sufficiently closely or sufficiently often. A closer liaison, a more obvious interest in the affairs of the medical man in the street, would result in a better understanding on our part and an increased strength on theirs. Increased strength is essential. With it, when our concerns are discussed before lay bodies, those who speak for us can speak for all of us and not, as now, for a fraction. And they can speak to better purpose; for how can any argument be strong when the speaker must admit that he speaks for only a part of the profession? And how are we likely to fare in matters of grave moment if we show lack of unity?

You may ask what this has to do with the spirit of medicine. But the spirit of medicine and its body are so thoroughly interwoven that what affects one will not leave the other untouched. The conditions existing in those places where lay bodies have bent the profession to their will, show that when the body is oppressed, the spirit suffers. If we are compelled to practise as a lawyer or a politician thinks we should, and at fees he thinks proper, the quality of our service will decline. If we quarrel or discriminate among ourselves disaster will be hastened. . . .

And solidarity is no longer merely desirable. Isolation, never splendid, is everywhere extinct or proceeding to extinction. We must abandon the egocentric attitude of the past with its querulous, "What will I get out of it?" Instead we must carry the spirit of the Oath beyond the bedside and into our professional community life. As we look upon our patients so must we look upon our fellows and our Associations and ask "What can I do to help?"

Inspiring all our beneficent efforts is the spirit of medicine. Like a sacred flame, first lit in remote antiquity, it has in all ages and in all countries illumined the way of the healer. Of that flame we are the immediate and temporary custodians. It is our duty to shield it from being extinguished. And how can we do that better than by forming a unified profession, a profession vowed to maintain its high standards and vowed also to maintain the dignity and prerogatives of its members, and strong enough to do these things. If we succeed in this then we can look forward to a golden era in medicine when every one from the highest to the lowest will enjoy the full benefits of our skill and knowledge without the financial and economic distress that now adds so heavily to the burden of ill health. And we in turn will be spared the annoyances and abuses that we now endure.

What is more, the young men of the future will still see visions when they turn to medicine as a career; and they, too, swearing by all they hold most sacred, will take their ancient oath as sincerely, as earnestly, as eagerly as men did in those far off times when they swore by Apollo.

Correspondence

The Anæsthetist

To the Editor:

In the July issue of the *Journal* there appeared a letter by Dr. F. B. Bowman, of Hamilton, Ontario, regarding the anæsthetist.

The author is to be congratulated on drawing the attention of the medical profession to many deficiencies of the average anæsthetist. However, I do not agree with his opinion that all the blame should be placed on the physician giving the anæsthetic. To a large extent the fault lies with those who were in charge of the post-graduate training in anæsthesia.

Probably the first anæsthetist to realize that the anæsthetist could be a valuable adjunct to the surgical team was Dr. Ralph M. Waters, of Madison, Wisconsin. About twelve years ago he commenced a three year residency for anæsthetists. Under this plan the individual was carefully trained in the administration of all the anæsthetic agents and their techniques. Preoperative rounds, the ordering of premedication and postoperative rounds were a routine matter. In addition, a certain amount of time had to be spent in the anatomy, pharmacology and physiology laboratories. Several universities have copied this same plan, and such a scheme was commenced at McGill University a year ago under the direction of Dr. Wesley Bourne and myself. The anatomy is under the direction of Prof. Martin, the pharmacology is under Prof. R. L. Stehle and the clinical material is available at eight of the Montreal hospitals including the three teaching hospitals. We hope that similar extensive post-graduate courses in anæsthesia will be commenced throughout Canada wherever the facilities are available.

Dr. Bowman may take some comfort from the fact that there is now an American Board of Anæsthesiology, a Specialty Board, under the control of the American Medical Association. In the United States an anæsthetist must have three years of training in a recognized centre and pass the examinations of the board in order to be certified as a specialist. These examinations consist of oral, written and practical tests. In the recent examinations over a third of the candidates failed. This stiffening attitude on the part of the anæsthetists themselves will undoubtedly give Dr. Bowman hope for the future.

During the past year the Royal College of Physicians of Canada formed a board of directors similar to the American Board of Anæsthesiology. It is hoped that in the near future this Board will do much to raise the general standard of anæsthesia.

Yours very truly,

M. DIGBY LEIGH.

Department of Anæsthesia,
Children's Memorial Hospital, Montreal,
July 6, 1942.

The Anæsthetist

To the Editor:

The letter of Dr. F. B. Bowman entitled "The Anæsthetist" is well worthy of comment.

Dr. Bowman is absolutely correct in his contention that the anæsthetist should become acquainted with the patient and the patient's history and condition prior to the operation. Personally, I cannot agree with Dr. Bowman that the average anæsthetist has to be coaxed to see the patient prior to operation. On the contrary; the anæsthetist is usually only too glad and too willing to co-operate, provided the surgeon-anæsthetist relationship is of the proper kind.

At the University of Illinois Research Hospital, where I served, each case scheduled for surgery was seen the evening before by a resident of the Anæsthesia department. The history of the patient was carefully checked, all pertinent remarks charted on the anæsthetic chart, the patient interviewed, and the type and amount of necessary pre-operative medication ordered. It was the rule that all pre-operative medication was to be decided upon by the anæsthetist, since the type and amount of such medication varies with the type of anæsthetic agent selected and the individual patient. This is the accepted practice in most medical centres where skilled anæsthesia is administered. Furthermore, the choice of anæsthetic agent and often whether or not surgery should be performed is the final decision of the anæsthetist.

This latter fact is not recognized sufficiently by most surgeons and little if at all by the general practitioner. It cannot be emphasized too strongly that the skilled anæsthetist is an important member of the surgical team and as such must share the necessary responsibility. Every doctor cognizant of this fact and mindful of the welfare of the patient should demand such co-operation and usually will receive it.

Yours very truly,

R. R. LEWIS, CAPT., R.C.A.M.C.

M.O. Farnham Military Hospital,
Farnham, Quebec,
July 9, 1942.

Special Correspondence

The London Letter

(From our own correspondent)

Wartime food.—There is no doubt that one effect of the war has been to increase the public's interest in food; and medical practitioners, as members of the public, are no exceptions to this. Consequently it is natural that the medical press and medical societies are discussing aspects of food, principally as regards such matters as vitamin and mineral deficiencies. Vitamin C is easy to estimate and easy to supply in synthetic form so that it rightly comes in for study, especially at the end of winter. Investigations of school children in 1941 showed a lower level of vitamin C than in corresponding surveys in 1938-39, the decrease being more marked in those from poor homes. Middle-class university students and scientific workers seem on the whole to have been less affected than the poorer children. Studies on medical students show a slight decrease in the early summer of 1941, although capillary fragility shows no change.

These results all apply to last year and the trend suggests that the position may be even worse now. It is not suggested that there is widespread scurvy but probably the intake of vitamin C is falling below the optimal level, especially for elementary school children. This state of affairs is unfortunately liable to be exploited by the sale of alleged citrus substitutes. These usually consist of citric or tartaric acid with colouring matter—and no vitamin C, since the Ministry of Food prohibits the manufacture or sale of this vitamin except under licence.

Another subject freely discussed is still wholemeal bread, which is now the only bread available. The authorities announce that their experts assert that it is harmless for those with gastric disease, and sufferers from certain alimentary diseases equally assert that it makes them worse. That this is largely a psychological belief is shown in the case of a nursing mother who alleged that the new bread made her baby very sick! On a more scientific plane is the discussion still going on about calcium and phytic acid. It seems clear that calcium is better absorbed from white bread than from brown bread diets and it seems clear that with the wholemeal bread we now have to eat we should take extra calcium in milk and cheese—when we can get them—or else calcium must be added to the new flour. It has recently been announced that the latter policy, has in fact, been adopted and 7 oz. of calcium carbonate is to be added to each 280 lb. sack of national flour.

More planning.—Still more discussions and pronouncements on various aspects of the future of medicine have recently appeared. The most important of these was by Lord Dawson who showed that already before the war the centre of gravity of practice was tending to move away from the home to organized surgeries, clinics, health centres and hospitals. It is therefore absurd to pretend, as some still appear to do, that all is well in the medical world and that no change need or will come when hostilities are ended. The keynote of Lord Dawson's address was that change must come gradually, that generalities must be agreed on and non-essentials left over for the time being and that in all probability all sections of the profession will in the future derive an increasing proportion of their earnings from salary and less from fees. Another aspect of the future was discussed by Prof. Munro Kerr in his presidential address to the obstetrical section of the Royal Society of Medicine. He urges that all midwifery should be handed over to specialists and conducted in institutions, the whole being supervised by a "Central Obstetric Board".

At another section of the Royal Society of Medicine experts recently discussed the future of public health nursing. Emerging nearly forty years ago from the work of the female sanitary inspector the public health nurse has done great service in the hygienic achievements of this period. But in the future she will have even more to do in educating the public in preventive medicine. The discussion turned round how to instruct and educate the right type of girl. Better status, better chances for promotion, and a broader training were all stressed. The public health nurse of the future must clearly be more of a teacher than a sick room attendant.

Mosquito danger?—Now that large tanks of what is called "Static Water" are a feature of the urban landscape the danger of mosquito breeding is obviously ripe for consideration. Addition of oil is ruled out because of solvent action on the waterproof used. Stocking the tanks with fish is probably a frivolous suggestion but it might increase the fish supply! Anyway it seems important first to determine if any dangerous species of mosquitoes are likely to contaminate the tanks. The answer at present appears to be in the negative and the only tanks requiring special supervision are those underground with the risk of sewage contamination. So the main danger of the static water still remains in their attraction for small city boys.

ALAN MONCRIEFF

London, June, 1942.

Methods of protecting radium during an air raid so that it will not be scattered by a bomb explosion have been recommended by the National Bureau of Standards.

The rules were drawn up by a committee of doctors, engineers and scientists, appointed by Dr. Lyman J. Briggs, director. They aim at safe storage of the radium with maximum protection and minimum interference with use. The committee advises extra precautions for 500 miles inland.—*Science News Letter.*

The War

Nominal Roll of Medical Officers Royal Canadian Naval Service as on June 1, 1942

The list of those serving in the Army has appeared in the February issue; that of the Air Force in the May issue of this year.—(ED.).

Surgeon-Captain

McCallum, A.	Toronto, Ont.

Surgeon-Commanders

Anderson, A. L.	Saskatoon, Sask.
Johnstone, D. W.	Regina, Sask.
Laroche, A. G.	Montreal, P.Q.

Surgeon-Lieutenant-Commanders

Amos, E. A.	Montreal, P.Q.
Best, C. H.	Toronto, Ont.
Fisher, C. M. (Prisoner of War)	Kitchener, Ont.
Giffin, C. A.	Kentville, N.S.
MacCharles, C. W.	Winnipeg, Man.
MacKenzie, W. C.	Edmonton, Alta.
Macleod, J. W.	Montreal, P.Q.
MacNamee, F. P.	Kamloops, B.C.
McClelland, J. H. C.	Mimico, Ont.
McEuen, C. S.	Montreal, P.Q.
McKay, A. L.	Toronto, Ont.
Mitchell, D. S.	Montreal, P.Q.
Morton, H. S.	Montreal, P.Q.
Oake, C. M.	Oakville, Ont.
Paton, W. M.	Vancouver, B.C.
Ruttan, H. R.	Victoria, B.C.
Verity, G. E.	Brantford, Ont.
Webster, D. R.	Montreal, P.Q.

Surgeon-Lieutenants

Alford, E. L. G.	Ottawa, Ont.
Arber, S. R.	Port Arthur, Ont.
Archibald, W. S.	Kamloops, B.C.
Atcheson, J. D.	London, Ont.
Bacal, H. L.	Montreal, P.Q.
Baker, H. G.	Vancouver, B.C.
Bean, D. M.	Waterloo, Ont.
Bingham, J. R.	Winnipeg, Man.
Blundell, S. F.	Victoria, B.C.
Bonnycastle, D.	Toronto, Ont.
Bourgeois, J. D.	Montreal, P.Q.
Bowers, N. H.	North Bay, Ont.
Breckenridge, W. G.	Peterborough, Ont.
Brooke, H. W.	Ardath, Sask.
Burnett, W. H.	Toronto, Ont.
Burns, R. E.	Trail, B.C.
Cadman, T. A.	Baie Verte, N.B.
Calder, J.	Edmonton, Alta.
Cameron, J. D.	Toronto, Ont.
Campbell, A. D.	Weyburn, Sask.
Campbell, B. A.	Strathroy, Ont.
Campbell, C. G.	Hamilton, Ont.
Chambers, A. L.	Edmonton, Alta.
Chapman, G. W.	Simcoe, Ont.
Chisholm, G.	Montreal, P.Q.
Chivers, N. C.	Vancouver, B.C.
Church, A. C.	Montreal, P.Q.
Clark, A. W.	Sussex, N.B.
Clark, J. W.	Bethany, Ont.
Cooke, R. L.	Wolseley, Sask.
Cotnam, H. B.	Pembroke, Ont.
Crutchlow, E. F.	Montreal, P.Q.
Crysler, W. E.	Simcoe, Ont.
Currie, M. A.	Regina, Sask.
Danby, C. W.	Kingston, Ont.
Davis, T. G. T.	Gananoque, Ont.
deBelle, J. E.	Montreal, P.Q.

Surgeon-Lieutenants

Denton, R. L.	Montreal, P.Q.
Dingwall, M.	Kingston, Ont.
Dixon, D. H.	Winchester, Ont.
Dodds, J. R.	Summerside, P.E.I.
Dupuis, R.	Verdun, P.Q.
Elliott, J. F.	Rochester, Minnesota.
Elliott, W. J.	Parksville, B.C.
Fahrni, G. P.	Winnipeg, Man.
Farish, H. G.	Vancouver, B.C.
Farmer, T. D. F.	Montreal, P.Q.
Fields, S.	Montreal, P.Q.
Flatt, W. D.	Toronto, Ont.
Forsey, R. R.	Toronto, Ont.
Fortye, R. A.	Kingston, Ont.
Frost, J. W.	Vancouver, B.C.
Fry, W. R.	St. Thomas, Ont.
Fyfe, J. G.	Winnipeg, Man.
Garten, K. A.	Halifax, N.S.
Gayman, G. R.	Vineland, Ont.
Gee, E. M.	Winnipeg, Man.
George, M. B.	Tweed, Ont.
Gibson, J. W.	Toronto, Ont.
Gorrell, D. S.	Regina, Sask.
Grant, G. H.	Windsor, Ont.
Gray, C. J.	Halifax, N.S.
Green, L. S.	Stoney Creek, Ont.
Hackney, J. W.	Calgary, Alta.
Hart, W. J.	Winnipeg, Man.
Hebb, H. D.	Halifax, N.S.
Hendry, G. A.	Toronto, Ont.
Hisey, L. G.	Toronto, Ont.
Hitchin, E.	Edmonton, Alta.
Howitt, C. W.	Guelph, Ont.
Hunt, E. A.	Bury, P.Q.
Jacks, Q. D.	Brandon, Man.
Jarry, G.	Montreal, P.Q.
Johnson, A. L.	Montreal, P.Q.
Johnston, J. L.	Stratford, Ont.
Keeley, C. D.	Essex, Ont.
Kirk, C. M.	Montreal, P.Q.
Laing, W. R.	Montreal, P.Q.
Lane, R. A. G.	Toronto, Ont.
Large, G. E.	Kingston, Ont.
Learmonth, C. M.	Toronto, Ont.
Lee, E. H.	Saskatoon, Sask.
Levesque, P.	Levis, P.Q.
Lewis, J. A.	London, Ont.
Little, J. L.	Guelph, Ont.
Little, L. P.	Ottawa, Ont.
Little, M. H.	Haileybury, Ont.
Locke, W.	Winnipeg, Man.
Lotimer, L. E.	Toronto, Ont.
Love, W. D.	Penticton, B.C.
Marshall, A.	Tranquille, B.C.
Maughan, G. B.	Montreal, P.Q.
Michon, J. J.	Montreal, P.Q.
Mighton, A. K.	Fergus, Ont.
Millar, R. D.	Vancouver, B.C.
Murray, J. M.	Ottawa, Ont.
MacCharles, E. D.	Medicine Hat, Alta.
MacDonald, C. C.	Montreal, P.Q.
MacDonald, R. M.	Sydney, N.S.
MacDonald, S. A.	London, Ont.
MacHattie, F. G. W.	Toronto, Ont.
MacIntosh, D. L.	Waverley, N.S.
MacKinnon, A. G.	Toronto, Ont.
MacKinnon, H. H.	Toronto, Ont.
MacLachlin, J. A.	St. Thomas, Ont.
MacLennan, J. G.	Edmonton, Alta.
MacMillan, R. L.	Toronto, Ont.
McCallum, A. J. C.	Winnipeg, Man.
McCormack, J. T.	Toronto, Ont.
McCurrach, A. C.	Kamloops, B.C.
McCutcheon, J. V.	Toronto, Ont.
McFarlane, R. H.	Winnipeg, Man.
McInnis, H. F.	Souris, P.E.I.
McIntyre, R. W.	St. Mary's, Ont.
McKenzie, R. B.	Newcastle, N.B.

Surgeon-Lieutenants

McLandress, M.	Winnipeg, Man.
McLean, T. B.	Edmonton, Alta.
McMillan, A. A.	Ottawa, Ont.
McRae, D. L.	St. Mary's, Ont.
McRitchie, M.	Fernie, B.C.
McRoberts, A. F.	North Bay, Ont.
Pain, A. M.	Hamilton, Ont.
Parker, J. M.	Winnipeg, Man.
Philpott, N. W.	Montreal, P.Q.
Powell, J. E.	Montreal, P.Q.
Prowse, L.	Charlottetown, P.E.I.
Rathburn, J. O.	Toronto, Ont.
Rice, W. G.	Toronto, Ont.
Riddell, A. E.	Arvida, P.Q.
Robb, J. P.	Montreal, P.Q.
Rogers, J. W.	Kingston, Ont.
Ross, A.	Montreal, P.Q.
Ross, J. D.	Edmonton, Alta.
Ross, R. C.	Vineland Station, Ont.
Russell, J. L.	Toronto, Ont.
Scott, J. W.	Toronto, Ont.
Scully, F. J.	Montreal, P.Q.
Sellers, E. A.	Winnipeg, Man.
Silversides, J. L.	Toronto, Ont.
Sinclair, J. W.	Warrenton, Virginia
Small, J.	Toronto, Ont.
Smith, A. G.	North Bay, Ont.
Smith, J. R.	Dominion, N.S.
Solandt, D. Y.	Toronto, Ont.
Stapleton, J. G.	Hamilton, Ont.
Starkey, D. H.	Montreal, P.Q.
Stoddard, C. C.	Halifax, N.S.
Swan, H. G.	Toronto, Ont.
Swan, R. S.	Calgary, Alta.
Tait, W. M.	Montreal, P.Q.
Terwillegar, N. A.	Edmonton, Alta.
Thomson, R. K. C.	Edmonton, Alta.
Trottier, A. E.	Windsor, Ont.
Tweedie, F. J.	Chatham, N.B.
Vauhan, A. M.	Toronto, Ont.
Viger, J. R.	Montreal, P.Q.
Wallace, W. B.	Toronto, Ont.
Ward, C. S.	London, Ont.
Watson, T. P.	Mount Royal, P.Q.
Wellman, M. C.	Whitby, Ont.
Wheelock, G. H.	Wolfville, N.S.
Whitelaw, D. M.	Vancouver, B.C.
Wilson, C. C.	Calgary, Alta.
Wilson, G. L.	Edmonton, Alta.
Wilson, J. R.	Peterborough, Ont.
Wilson, R. J.	Toronto, Ont.
Wilson, T. V.	Fergus, Ont.
Winthrope, W. C. (Missing)	Saskatoon, Sask.
Woodruff, J. H.	Montreal, P.Q.
Woolhouse, F. M.	Saskatoon, Sask.
Wylde, E. W.	New Westminster, B.C.
Yoerger, R. G.	Humboldt, Sask.
Young, F. M.	Seeley's Bay, Ont.

University Notes

McGill University

At the Annual Convocation of McGill University, held on May 27, 1942, ninety candidates received the Degree of Doctor of Medicine and Master of Surgery. The prize winners were the following:

Holmes Gold Medal for the Highest Aggregate in all subjects forming the Medical Curriculum: Eric W. Peterson, B.Sc., Montreal.

The Wood Gold Medal, for the best Clinical Examinations in the Final Year; Robert Forsyth Prize in Surgery: Dorothy C. Bentley, B.Sc., Charlottetown, P.E.I.

The Lieutenant-Governor's Silver Medal, for the Highest Standing in Public Health and Preventive Medicine: Herbert F. Owen, Montreal.

The J. Francis Williams Fellowship in Medicine and Clinical Medicine; the Alexander D. Stewart Memorial Prize for the Highest General Qualifications for the Practice of Medicine: James H. Graham, Ottawa, Ont.

Honorary Degrees of Doctor of Laws were conferred upon William Massey Birks; Alvah Hovey Gordon, M.D.; Hon. Charles Gavan Power, Minister of National Defence for Air; Hon. Jay Pierrepont Morgan, United States Envoy Extraordinary and Minister Plenipotentiary to Canada.

The Convocation Address was given by Hon. J. P. Morgan.

Miscellany

Care of Soldiers' Feet in Britain

Britain is taking special care in this war of the feet on which her troops will join in the march to victory. Corns, bunions, in-growing toe-nails and other foot troubles, already much less prevalent than in the last war owing to mechanized transport, are now to be altogether banished.

Already over 200 qualified chiropodists ranking as corporals have been appointed to military centres, and 40 women, with another 60 on the way, have been given similar appointments in the Auxiliary Territorial Service.

Special mobile units and chiropody travelling outfits are now in use to make sure that every man in the Army needing expert treatment gets it, however remote his station.

The second of the mobile units to go into service is an adapted 10 cwt. Ford van fitted with patient's chair, operating stool, trolley dressing table, electric nail drill and sterilizer and a cabinet of medicaments, instruments and so on.

The travelling outfits, twelve of which have already been made, are for the R.A.M.C. chiropodist corporal at military centres. Equipped with one of the cases, about the size of a portable gramophone, he can easily carry all his instruments, medicaments and towels.

Facts from Board of Registration of Medical Auxiliaries

Gardens of England's Kings

GROWING HERBS FOR CHEMISTS AND HOUSEWIVES

Deadly nightshade (belladonna) is being cultivated at Kew's Royal Botanical Gardens in Surrey to let Britain's manufacturing chemists have the 2½ tons of the medicinal herb needed

for rheumatic ailments. Kew is also growing colchicum another anti-rheumatic herb, from bulbs collected by Boy Scouts in the English countryside.

Once the private gardens of England's kings, Kew has also set out to show the British housewife what can be done with the traditional English herbs. Dill, fennel, sage, chervil, marjoram and thyme are some of the many herbs now being grown there, and all of them provide attractive flavourings for soups and other wartime dishes.

In the midst of its 288 acres, where 24,000 different species of plants from all climates flourish as they do at home, Kew has now a regulation 10-rod allotment with a woman gardener in attendance to help amateur food-growers with their problems of raising potatoes, swedes, parsnips, carrots, onions and other vegetables.

Facts from the Royal Botanical Gardens, Kew

Abstracts from Current Literature

Medicine

Sneezing and Disinfection by Hypochlorites. Bourdillon, R. B., Lidwell, O. M. and Lovelock, J. E.: *Brit. M. J.*, 1942, **1**: 42.

Studies were made on the number of bacteria-carrying particles emitted during sneezing, the rate of fall of these particles, and the rate of killing resulting from the spraying of hypochlorites from a hand spray.

A small closed room with only table and chairs as furniture was left overnight after oiling the floor and furniture so as to reduce dust to a minimum. Next morning counts were taken of the total bacteria-carrying particles in the air before and after sneezing. The counts were made with the special sampling apparatus described by Bourdillon, Lidwell and Thomas (1941), and in some tests with open Petri plates as well. A series of 5 such tests gave an average of about 100,000 bacteria-carrying particles per sneeze, of a size sufficiently small to remain suspended in the air 1 metre from the floor for at least one minute after the sneeze. These particles settled slowly on the floor giving a logarithmic fading away at an average rate, such as would be given by ventilation at a rate of 6.4 changes of air in the room per hour. Thus, even half-an-hour after a group of 4 sneezes, there were still 16,000 bacteria-carrying particles in the air.

In 15 similar tests a hand spray, using a 1 per cent solution of sodium hypochlorite, was used about 3 minutes after the sneezes with sufficient pump strokes to give a concentration of 7.5 cm.^{3} of solution per 100 cm.^{3} of air. This caused a very rapid destruction of the organisms, almost all being killed within 3 to 4 minutes.

An Evaluation of Rheumatic Nodules in Children. Hayes, R. M. and Gibson, S.: *J. Am. M. Ass.*, 1942, **119**: 554.

Of 167 children with rheumatic nodules, 86 were boys and 81 were girls.

The age-incidence of patients with nodules closely paralleled the age-incidence in the group with rheumatic infection in general.

Nodules were found in many regions, the most frequent locations being the elbows, knees, scalp, knuckles, malleoli and vertebral spines. Nodules on the extremities tended to be symmetrical in their distribution. The duration of the nodules varied from a few days to several months. Other rheumatic phenomena were present in every case. Rheumatic heart disease was found in 163 cases; 52 patients (31 per cent) died. The number of nodules in the individual case was not found to be important in determining the prognosis. It was in the severely infected child whose illness was protracted that the rheumatic nodule was prone to appear. S. R. TOWNSEND

Surgery

Radical Surgical Treatment for Carcinoma of the Cardiac End of the Stomach. "Chirurgie radicale du cancer de l'extrémité cardiaque de l'estomac". Garlock, J. H.: *Surg., Gyn. & Obst.*, 1942, **74**: 555.

Le cancer juxta-cardiaque était considéré autrefois comme inopérable. La radiographie, l'œsophagoscopie et la gastroscopie permettent un diagnostic précoce et un traitement adéquat. L'auteur conseille sa résection facilitée par les progrès de l'anesthésie et de la technique chirurgicale. Se basant sur des cas cités variant entre 36 et 73 ans et controlés par biopsie, l'auteur estime à 60 pour cent la chance de survie et à 80 pour cent les survies de 2 ans.

Taille, forme et position du cardia sont très variables. La jonction œsophagocardiaque agit, d'après l'auteur, comme un sphincter prévenant les régurgitations gastriques. Là, l'histologie de la muqueuse change radicalement. Ces cancers ont toujours les caractères d'un adéno-carcinome et envahissent l'œsophage, par voie ganglionnaire et lymphatique gastro-hépatique ou gastrocolique, atteignant parfois la partie inférieure du médiastin et le foie.

Cet envahissement détermine l'etendue de l'exérèse. Une résection trans-thoracique avec œsophagogastrostomie offre le plus de chance de guérison. Pendant 4 à 5 jours, le malade sera nourri artificiellement; pas de solide avant la 3e semaine. Cette thérapeutique est importante et complète le traitement chirurgical. PIERRE SMITH

Malignant Lesions of the Stomach. Walters, W.: *Arch. Surg.*, 1942, **44**: 636.

Although the results of treatment of localized cancer of the stomach of low grade malignancy have been as satisfactory as those of treatment of cancer of the colon, the greater frequency of highly malignant lesions in the stomach and the large number of instances in which the disease does not produce symptoms indicative of gastric neoplasms until late in the course of the disease, explain the larger percentage of inoperable malignant lesions of the stomach, as compared with inoperable lesions of the colon. The hopeful aspect of the surgical treatment of cancer of the stomach has been that at the Mayo Clinic in 28.9 per cent (31.9 per cent, when the figure is adjusted for the normal death rate) of cases in which the lesions were removed surgically, irrespective of the grade of malignancy or involvement of the inguinal lymph nodes, the patients were living and well five years or more after operation.

Precancerous lesions such as chronic gastric ulcer and benign polyps should be removed surgically.

Walters prefers partial gastrectomy by the method of Billroth in the treatment of cancer of the stomach. For the most part, he employed this operation as modified by the indirect anastomosis of Polya or Polya-Balfour type.

G. E. LEARMONTH

Extrophy of the Bladder. Young, H. H.: *Surg., Gyn. & Obst.*, 1942, **74**: 729.

Young reports a successful case of operative treatment. Voluntary control was obtained after multi-stage procedures herein described. He believes it is the first to be published.

F. S. DORRANCE

Appendiceal Obstruction in the Non-inflamed Appendix. Murphy, W. B.: *Surg., Gyn. & Obst.*, 1942, **74**: 968.

Murphy suggests three methods of obstruction in the noninflamed organ, (1) kinking at the appendico-cæcal junction; (2) kinking along the length of the appendix due to peritoneal adhesions; (3) intra-appendiceal stenosis due to lymphoid hyperplasia or fibrosis. He has drawn these conclusions from (*a*) adult appendices surgically removed and from (*b*) adult organs removed at autopsy; (3) fetal and new-born autopsies.

In only 62 per cent of appendicectomies during 5 years at the third surgical division of the Bellevue Hospital was there found to be microscopic evidence of inflammation of the appendix. He has come to the conclusion after microscopic examination of 0.5 centimetre interval sections that Flint's statement "the function of the appendix is unknown" still stands but he offers here extra- and intra-appendicular obstruction as a means to explain symptoms.

F. S. DORRANCE

Obstetrics and Gynæcology

Pregnancy in the Patient with Chronic Hypertension. Browne, F. J. and Dodds, G. H.: *J. Obst. & Gyn. of the Brit. Emp.*, 1942, **49**: 1.

This paper deals with 239 pregnancies in 222 patients who already had chronic hypertension when pregnancy began. Exacerbation in the form of albuminuria, œdema, etc., occurred in 17.9 per cent. If a further rise in blood-pressure alone or with œdema were taken as evidence of exacerbation this occurred in 82 per cent. In 17 per cent of the cases there was no exacerbation of any kind.

The fetal and neonatal mortality was 16.2 per cent. While intra-uterine death of the fetus was usually preceded by albuminuria it also occurred in absence of albuminuria, especially if the blood-pressure rose to 160 mm. or over. The same applied to spontaneous abortion and premature labour.

Tests of renal function were of little help in prognosis. The most valuable seemed to be the blood urea. If this was 30 mgm. per cent or over at the start of pregnancy the chance of a living and viable child was small.

P. J. KEARNS

The Categories of Abortion and Abortion-stillbirth Sequences. Malpas, P.: *J. Obst. & Gyn. of the Brit. Emp.*, 1942, **49**: 65.

Abortion sequences and abortion-stillbirth sequences can be divided into two major groups.

In the first group a cause cannot be found for the sequence of abortions. In this group a spontaneous cure can be expected, even without treatment. Most, if not all of these cases are not instances of true recurrent abortion. They are probably due to the chance incidence in successive pregnancies of the casual abortion-producing factors. If after investigating a case of sequential abortion an abnormal factor is not found, then there is a good prognosis for a living child.

The second group comprises various categories. The first of these is the "toxæmia of pregnancy, nephritis and hypertension" group. In this group the abortions occur later and the prognosis is not so good, varying with the amount of permanent cardio-renal changes present. Patients with early hypertension carry a bad prognosis, even though no other abnormal conditions can be detected. Some of the patients respond well to general treatment, but many disappointments are encountered.

The second category, a small but important one, is that of heart disease. The common mitral lesions do not cause recurrent abortion and in the three cases of heart disease in the series there was an associated pulmonary lesion with ensuing peripheral anoxæmia and stasis, which was considered the cause of the recurrent abortions. The prognosis in this group is fair, provided adequate rest is obtained.

A third category consists of a heterogeneous group of metabolic and endocrine faults. A rough division of the whole group can be made into those cases characterized by obesity, in which the prognosis is good, and those characterized by poor general condition, often a thyroid lesion and a poor pregnancy response. The prognosis in this sub-group is not good.

P. J. KEARNS

The Causes and Treatment of Secondary Dyspareunia. Henriksen, E. and Horn, P.: *Am. J. Obst. & Gyn.*, 1942, **43**: 671.

The confusion in the study of dyspareunia results directly from a terminological discordancy and the widespread apathy of the medical profession toward this problem. The causes of secondary dyspareunia are grouped according to the major underlying factors, into anatomical, inflammatory, neoplastic, surgical and miscellaneous groups. The correct treatment is dependent upon the identification of the underlying cause and the proper evaluation of the so-called intangible factors. Though pathologic changes or structural defects can be demonstrated in most instances, full cognizance must be taken of the psychic factor. The importance of prevention therapy is overlooked. Not only are premarital examination and instruction valuable, but a fuller appreciation by the physician of the need of a discriminatory selection of types of treatment is sorely needed. From the gynæcological point, the most frequent single cause of dyspareunia is the attempt to apply routine surgical methods without individualizing indications.

ROSS MITCHELL

Puerperal Cerebral Thrombophlebitis Treated by Heparin. Stansfield, F. R.: *Brit. M. J.*, 1942, **1**: 436.

A review of the subject of puerperal cerebral thrombophlebitis is given, and a case successfully treated by heparin is recorded.

The introduction of heparin gives us an effective weapon to treat what has invariably been a fatal complication of the puerperium, and the clinician's reward for an early diagnosis will be the survival of the patient rather than the sterile pleasure of making an accurate diagnosis and confirming it in the post-mortem room.

ROSS MITCHELL

The Use of Ergonovine in the Placental Stage of Labour. Davis, M. E. and Boynton, M. W.: *Am. J. Obst. & Gyn.*, 1942, **43**: 775.

A new method of conducting the placental stage of labour is described. Ergonovine (ergometrine) is administered after the fetal head has been delivered and when easy egress of the shoulders has been assured. This results in an instantaneous separation of the placenta and its expulsion into the distended lower uterine segment and vagina. This procedure is applicable only to hospital practice. The marked reduction in blood loss and the very low incidence of complications in the third stage should result in a marked decrease in post-partum hæmorrhage and its undesirable sequelæ. Detailed observations are recorded in 2,006 patients, more than one-half of whom were treated by this new procedure.

ROSS MITCHELL

Clinical Application of Ergonovine During the Third Stage of Labour. Diddle, A. W.: *Am. J. Obst. & Gyn.*, 1942, **43**: 450.

The intravenous injection of ergonovine shortly before the conclusion of the second stage of labour appears (1) to shorten the placental stage; (2) to diminish the average blood loss; (3) to reduce by one-half the number of patients who suffer from post-partum hæmorrhages, but (4) to almost double the incidence of the more serious anomalies of the third stage, retained placenta and partially detached placenta.

This technique should still be viewed as experimental and should not be adopted generally until sufficient evidence has been accumulated to permit a reliable statistical evaluation of its associated dangers.

ROSS MITCHELL

Inhibition of Lactation by Synthetic Œstrogenic Substances. Barnes, J.: *Brit. M. J.*, 1942, **1**: 601.

The synthetic œstrogenic substances, stilbœstrol, dienœstrol, and hexœstrol were given orally to 134 patients in whom it was necessary to inhibit lactation. Ultimate success with regard to lactation was obtained in all cases, though in some there were breast symptoms. These results stand in contrast to the older methods of treatment, with which very hard and painful breasts were often seen.

The results were better when treatment was begun within one day of delivery than when it was started later. They were also better in patients in whom pregnancy had advanced beyond 32 weeks. Cases of pregnancy terminating at between 20 and 28 weeks were especially difficult to treat.

Three patients with engorged breasts were successfully treated for this condition while lactation continued normally.

No ill effects from the treatment were noted, apart from complaints of transient nausea in 3 patients.

Synthetic œstrogenic substances are valuable for the inhibition of lactation and for the treatment of engorged breasts. They are cheap and effective, and are easily given by mouth.

ROSS MITCHELL

Pædiatrics

Gastric Lavage in Diagnosis of Tuberculosis in Children. Davies, T. W. and Doherty, C. J.: *Brit. M. J.*, 1942, **2**: 212.

A definite diagnosis of tuberculosis is very often difficult to establish, especially when the

only evidence of infection is a positive tuberculin test which decreases in significance as adolescence approaches. Sputum is unobtainable in infants, and, so, many cases give no evidence of pulmonary disease while others show minimal radiological evidence. In view of this the authors felt a reliable laboratory method for making a diagnosis was of great assistance. By means of gastric lavage they found 37 per cent of 64 cases under observation revealed tubercle bacilli by this method.

Their technique was to use a No. 10 catheter joined by a glass connection to a rubber tubing fitted with a glass funnel. The stomach is washed in the morning after 14 hours' fasting. Two hundred to 300 c.c. of sterile water are used. It is more convenient to pass the catheter through the mouth. Examination is made by direct smear culture and guinea-pig inoculation.

Negative results may be accounted for by an early lesion and by the healing process shutting off communication with a bronchus. When tubercle bacilli were demonstrated by gastric lavage it was strongly felt that such children should be considered infectious and therefore segregated. K. L. MCALPINE

Oto-Rhino-Laryngology

A General Survey of Otorhinological Considerations in Service Aviation. Simpson, J. F.:

Aviation Deafness and Its Prevention. Dickson, E. D. D.:

A Suggestion for a New Method of Testing Hearing in Aviation Candidates. Fry, D. B.:

Aviation Pressure Deafness. McGibbon, J. E. G.:

Observations on Air-sickness. Winfield, R. H.: *J. Laryngol. & Otol.*, 1942, **57**: 1-25.

These pages comprise a symposium dealing with the ear in relation to military airplane work. The problems dealt with are the protection of the ear from damage without interference to hearing, the detection of damage and its treatment. Changes in altitude with rapid variation in barometric pressure produce most of the disturbances to the ear and nose. Due to obstruction in the Eustachian tube or the outlets of the sinuses the equalizing flow of air is interfered with, producing acute pain and deafness, the aero-otitis. The pain usually occurs on descent and may be agonizing. The pain appears to be in the mucosa and bony walls of both the ear and sinuses.

The routine rotation test has been found to be unsatisfactory in the discrimination of men who will develop air-sickness and has been discarded. If there is no appreciable hearing loss and the Eustachian tube is easily opened, a moderate degree of scarring of the drum does not debar from flying, although adhesions may cause discomfort.

The only reliable test for patency of the Eustachian tube so far has been the compression chamber. Flying with nose or throat infection is forbidden, owing to the interference with the mechanism for adjusting pressure in the ear and sinuses.

After exposure to noise of the intensity found in modern airplanes deafness to high tones occurs. At first it is limited to 4,096 cycles per second but later frequencies as low as 1,024 cycles per second are involved. With this loss mistakes in hearing of the spoken word appear. The best protection so far has been the wearing of a flying helmet with telephones attached.

The most satisfactory hearing test has been to place the individual in a high-level noise field wearing a standard helmet and telephones. Then words and sentences are delivered into the telephones which the candidate is expected to record. Lately, the background noises and the phrases have been recorded on gramophone records and these used for testing groups at a time.

In aero-otitis deafness is the main symptom and usually the last to disappear. Associated with the deafness are pain, tinnitus, and vertigo. The drumheads may appear normal, invaginated, congested, or ruptured. There is evidence, both direct and indirect, of impermeability of the Eustachian tube to air. During descent failure to open the tube regularly or inability to open the tube produces the condition of primary pressure occlusion. If forced ventilation is neglected for from one to two hours secondary vital occlusion ensues. This secondary occlusion is not understood, but may take 14 weeks to resolve. GUY H. FISK

Radiology and Physiotherapy

Evaluation of Methods for Mass Survey of the Chest. Christie, A. C.: *Am. J. Roentgenol. & Radium Therapy*, 1941, **47**: 78.

In diagnostic accuracy the writer finds the 4 x 5 in. film the most reliable, the roentgenographic paper next, and the 35 mm. film the least. For permanent record the 4 x 5 in. film is readily and permanently filed with the person's record without reduction, as is necessary with the roentgenographic paper or 14 x 17 in. film, and without special mounting which is necessary with the 35 mm. film. The 4 x 5 in. film is readily examined at any time without special illumination, magnification, or projection. The author finds the study of the 35 mm. film productive of eyestrain and exceedingly tiring, which is not true of the 4 x 5 in. film.

The important factor in his preference for the 4 x 5 in. film method is his conviction that the quality of the film is much superior to that of the other two. He rates it in diagnostic accuracy very close to the 14 x 17 in. film. In fact, for minimal lesions, he would feel more

certain of their detection by means of two 4 x 5 in. films, made with a tube shift, than he would with a single 14 x 17 in. film of the best quality. He has been greatly impressed by the importance of taking two films of every chest in a survey. Shifting the tube serves to uncover portions of the lungs which may have been obscured by bones or other structures in the first roentgenogram. This also enables one to have the additional advantage of steroscopy if he desires it. The U.S. Army Medical Department now has its films made in the 4 x 10 in. instead of 4 x 5 in. sizes, so that two fluororoentgenograms are made in each case and they are readily examined stereoscopically.

Recently Major de Lorimier at the Army Medical School has been working on what gives promise of being a real advance in this method, namely, the use of a single-coated instead of a duplitized film, a fine grid being used to compensate for a higher voltage which is necessary.

R. C. BURR

Pathology and Experimental Medicine

Dysostosis Multiplex (Hurler's Disease); Lipochondrodysplasia; Gargoylism. Cordes, F. C. and Hogan, M. J.: *Arch. Ophthal.*, 1942, **27**: 637.

These authors report 5 cases of this rare disease, of which they say only 50 cases have so far been recorded. They occurred in three families, and in none were the parents related. In one instance, one girl was affected; in the second family two sisters were affected. One of the sisters had an unaffected twin sister. In the third family two brothers were affected, and one of these had an unaffected twin sister.

The disease is one of the "disturbed lipid metabolism" group, in which are Tay-Sachs disease, Niemann Pick's disease, the Hand-Schüller-Christian syndrome, Gaucher's disease, and this one of dysostosis multiplex. This is characterized by large head with scaphocephalic deformities, saddle nose, large jaws, thick fleshy tongue, short neck, kyphotic spine, protuberant abdomen with umbilical hernia, enlarged spleen and liver, short limbs with limitation of joint movement, widely separated orbits, bilateral corneal clouding. It closely resembles Morquio's disease, except that in the latter there are no skull changes and the mentality is not affected, whereas in dysostosis multiplex there is mental deficiency and sexual retardation said to be due to the lipid deposits in the nervous system. The bony changes are independent of lipid deposits, as the latter are said not to occur in the cartilage as it develops.

The occurrence of a rare disease in several members of a family in which the parents are normal would suggest the recessive mode of inheritance. In the 50 cases reported, 11 instances were of two in a family affected, and 3 were of three in a family affected, making a total of 31 familial cases. In only one instance was consanguinity in the parents noted.

MADGE THURLOW MACKLIN

Sulfonamides: Passage into Spinal Fluid and Rectal Absorption. Cutting, W. C. and Sultan, E. H.: *Ann. Int. Med.*, 1942, **16**: 708.

Sulfathiazole, when given by mouth, was found to enter normal spinal fluid to a concentration of only about 20 per cent of the simultaneous blood concentration; roughly twice this concentration would penetrate through inflamed meninges.

Sulfapyridine and sulfanilamide penetrated more efficiently into the spinal fluid in meningitis, the concentration in the spinal fluid approaching the blood level of these drugs.

Rectal absorption of sulfapyridine and sulfathiazole was practically nil in dogs and patients.

Rectal absorption of sulfanilamide, although variable, was always considerable, and, when low blood concentration will suffice, rectal administration may be a valuable method for therapeutic administration of the drug.

S. R. TOWNSEND

Hygiene and Public Health

Epidemiology of Tuberculosis in a Mental Hospital. Deegan, J. K., Culp, J. E. and Beck F.: *Am. J. Pub. Health*, 1942, **32**: 345.

The authors' attention had been directed to the apparent high incidence of tuberculosis among employees of the Willard State Hospital for Mental Diseases, and to the fact that the New York State Insurance Fund had expended a very large sum of money for medical and nursing care and compensation for employees of the New York State Department of Mental Hygiene.

A survey of the situation in the Willard State Hospital was accordingly undertaken. In the beginning some 3,317 patients were tested with old tuberculin of whom 86.6 per cent reacted positively. Subsequently, the entire patient population was x-rayed, using the 14 x 17 film. Three thousand, four hundred and seven adult patients were x-rayed; 76 (2.2 per cent) were considered to have active tuberculosis, 157 (4.6 per cent) to have inactive tuberculosis, and 110 (3.2 per cent) to have healed tuberculosis.

In addition to the patient survey 749 employees were x-rayed. This was the group that had yielded 11 cases (mostly advanced), and had been a factor in prompting the survey. In addition to the 11 cases already under treatment 12 cases of clinical tuberculosis were found.

The evidence produced from the survey seemed to indicate a high incidence of tuberculosis among both patient and employee groups. As a result certain control measures were put

into effect among which were: (1) segregation of known tuberculosis cases; (2) x-ray of all new patients; (3) re-x-ray of all patients at the end of one year; (4) pre-employment x-ray of all employees; (4) x-ray of employees giving direct service to patient every 6 months and to employees in tuberculosis wards every 3 months.

FRANK G. PEDLEY

Occurrence and Recovery of the Virus of Infantile Paralysis from Sewage. Paul, J. R. and Trask, J. D.: *Am. J. Pub. Health*, 1942, 32: 235.

A few years ago it was considered as established that the poliomyelitis virus gained entrance into the body by way of the nasal mucosa. This doctrine has recently been challenged by the recovery of the virus from intestinal contents and from sewage. Paul and Trask review the literature in this respect and report some work of their own. They suggest the possibility of the presence of virus at all times in the sewage of large cities, but state that 22 tests they have made of 11 post-epidemic samples in four large cities have all been negative. However, in tests of sewage from New Haven and New York carried on monthly for nearly two years, 2 positive results have been obtained. These were both from New York sewage. Mention is made of the recent recovery of poliomyelitis virus from flies caught in areas where the disease was prevalent. It is natural to speculate whether flies infected with human excreta might not play some part in the spread of the disease.

The extent to which poliomyelitis is resistant to the action of chlorine has not been satisfactorily worked out. It is thought that concentrations in excess of those usually used in water purification are necessary.

FRANK G. PEDLEY

Obituaries

As we go to press we learn with extreme regret of the death on July 19th of Dr. H. S. Birkett of Montreal. Full notice will appear in our next issue.

Dr. Robert Moore Best, of Killarney, died in the Brandon General Hospital on June 30th at the age of 64. Born in Ireland, he received his degree in medicine there, and practised in England and South Africa before coming to Winnipeg in 1911. Seven years later he removed to Killarney where he carried on practice and was active in the life of the community. He is survived by his widow, three daughters and three sons, one of whom is Dr. Brian D. Best, of Winnipeg.

Dr. John Harold Burgess, of Ottawa, Ont., died on January 19, 1942. He was born in 1901, and graduated from the University of Toronto in 1926.

Dr. Ethan Leo Connolly, of Collingwood, Ont., died on May 11, 1942. He was born in 1876 and graduated from the University of Toronto in 1900.

Dr. Charles William Doran. We regret to record the sudden death on February 18, 1942, of Dr. C. W. Doran, physician and surgeon of Saskatoon, Sask. He came from a family of a distinguished line of doctors, now living in Canada and the United States and his passing is regretted by all of the medical fraternity of Saskatoon and a very large number of sincere friends.

Dr. Doran was born at Iroquois, Dundas County, Ont., on October 22, 1873. His early education was partially obtained in Ontario, and in 1888 his parents moved west to the prairies and settled in Brandon, Man., and in that Province he finished his early schooling, having attended high school and collegiate in Brandon, Man., and later Wesley College, Winnipeg, which is affiliated with Manitoba University. He graduated in Arts from that institution in 1898. He still was not content to take on remunerative work at that time and went on further to the University of Minnesota in 1901, where he graduated with distinction in medicine and wrote a thesis on the surgery of knee joint and obtained his C.M. degree. He did extensive internship in St. Joseph's Hospital in St. Paul, Minn. He began and practised his chosen profession at Montgomery, Minn., for some years; later he did medical and surgical work under the capable attendance of Dr. James Quinn who was chief Medical Surgeon for the Great Northern Railways. He came back to Canada in 1905 and practised in Perdue and Saskatoon until his death.

His medical work was not his only sphere. He served on the Saskatoon Collegiate Board and later on the Collegiate Institute Board for many terms. He first became a member of the Board in 1911, under whose supervision in Saskatoon the first secondary school was built. He continued as a member of the Board until just previous to his death. During his early youth he played hockey, lacrosse, soccer, and other games and was frequently a competitor in field and track sports. He always held a place in his most busy days of medical work for athletics and athletes and was medical adviser for various clubs and athletic organizations, including the Saskatoon Quakers, Shieks and a number of junior and minor Clubs which played soccer, baseball, rugby and other games in Saskatoon. He was past President of the Wesley Macs of Saskatoon and he frequently acted as time keeper and physician at boxing bouts. His unique services were always in demand by almost all Athletic Associations in his locality.

Dr. Doran was twice married. He is survived by his widow, one son by his first marriage, Carman of New York City, N.Y., and three children by his second marriage, Dorothy, Phyllis and William all at home. Dr. Doran was a man of singularly attractive and genial nature, who made quite unconsciously many friends wherever his lot was cast. Wise in counsel, clear, persuasive and convincing in argument, he never forgot that a question may have more than one side. It has been well said of him that his long career is the record of a man of great integrity and marked ability which found expression in many phases of life with which he actively associated himself. His memory will be long enshrined in the hearts of those who knew him.

Dr. Clarence Currie Everson, a former president of the College of Physicians and Surgeons of Manitoba, died in the Winnipeg General Hospital on July 10, 1942. Born in Morden, 57 years ago, he graduated in Medicine from Manitoba Medical College and took post-graduate work in Chicago. He practised in Morden for thirty years and took an active part in the life of the community. He was a member of several fraternal organizations. He was interested in tennis and curling. His widow, a son, and two daughters survive him. Quiet and dignified in manner, and skilled in his profession, he gained the respect of all who knew him.

Dr. George Irvine I. Ireland, of Tyler, Penn., died on February 8, 1942. He was born in 1900, and graduated from the University of Toronto in 1923.

Dr. Francis Leo McCarroll, of Windsor, Ont., died on December 28, 1941. He was born in 1891 and graduated from McGill University in 1915.

Dr. Dalraddy Law Macdonald, a life-time practitioner in Shawinigan Falls, died suddenly on June 23rd in his 57th year.

Born at LaGuerre, Que., son of the late John Davidson Macdonald, he was educated at Huntingdon Academy, and later studied medicine at McGill University. After graduation he set up in practice in Shawinigan Falls and had remained there since.

Besides his wife he is survived by three sons, Sub.-Lt. John F. Macdonald, Pilot Officer Observer James F. Macdonald and Sgt. Wireless Airgunner Robert L. Macdonald, the latter two on active service overseas; two daughters, Mrs. R. T. Hyland and Miss Marion Ion Macdonald, both of Montreal; and a sister, Mrs. W. R. Stone, of Vanderhoof, B.C.

Dr. Charles G. Marsters, of Bass River, Nova Scotia, died suddenly on June 21st. Dr. Marsters was driving his car along the highway when it was seen to swerve into the ditch. Death was found to be due to natural causes. He was 52 years of age.

Dr. Marsters graduated in Medicine from Dalhousie in 1920 after having served overseas with the Canadian forces in the Great War. After graduation he practised in Montserrat, B.W.I. For the past eighteen years he has served the people of Bass River, both through his professional skill and his wide interest in community affairs.

Dr. William Freeman Nicholson, of Hamilton, Ont., died on June 3, 1942. He was born in 1883 and graduated from the University of Toronto in 1910.

Dr. Albert Pain, of Hamilton, Ont., died on June 4, 1942. He was born in 1886 and graduated from the University of Toronto in 1906.

Dr. William Clare Pedlar, of Sturgeon Falls, Ont., died on December 29, 1941. He was born in 1879 and graduated from University of Toronto in 1909.

Dr. Samuel Rodin. After a long illness borne with the utmost fortitude, Dr. Sam Rodin died in the Winnipeg General Hospital on June 29th, in his forty-ninth year. Graduating from the medical faculty of the University of Manitoba in 1915, he immediately enlisted in the Royal Canadian Army Medical Corps and served overseas with the rank of captain until the end of the first World War. From 1919, almost up to the time of his death, he practised in Winnipeg, with an interlude in 1937, when he did post-graduate work in internal medicine at London, England. On the outbreak of the present war he served as medical examiner with the armed forces. He was a lecturer in medicine in the University of Manitoba, a member of the honorary attending staff of the Winnipeg General Hospital and of the executive of the College of Physicians and Surgeons of Manitoba. His affiliations were with the B'nai B'rith, the Masonic Order and Shaarey Zedeck Synagogue, and he was a charter member of the General Monash branch of the Canadian Legion. Integrity and courage were stamped on him indelibly.

Dr. W. A. Scanlon, eye specialist of Edmonton, passed suddenly away on June 27, 1942. He was a graduate of Trinity University in 1904. He registered in Ontario on June 27, 1905, thus he died exactly 37 years after registration. Ten years after graduation, he moved to Edmonton where he continued in practice until his death. He was a most outstanding man in character, ethics and skill and will be greatly missed by his many friends.

Dr. Arthur Firman Tufford, of St. Thomas, Ont., died February 15, 1942. He graduated from Trinity College in 1888.

Dr. Joseph U. Vaillancourt, of Quebec, a member of the Royal College of Physicians and Surgeons of Canada, died suddenly on June 4th. He was 61 years old and was a graduate of Laval University.

News Items

Alberta

Dr. J. Ross Vant has been appointed head of the Department of Obstetrics and Gynæcology, at the University of Alberta in place of the late Dr. L. C. Conn.

Dr. J. O. Baker has been made a professor in the same department.

Dr. J. B. MacKay has been made assistant demonstrator in clinical medicine, and Dr. D. R. Wilson has been appointed to a similar post, while Dr. W. W. Eadie is now a sessional assistant demonstrator in surgery.

Recently the Government of Alberta has established five large municipal units approaching county size in the eastern part of this province. It is thought that local affairs can be managed much more economically this way. One of these units has voted $20,000 for medical care and attention to all its residents. This does not include hospitalization, dental services or the work of specialists, but just what the general practitioner can do with facilities at hand. They are hoping to get five physicians who will be placed in suitable locations in the area for better attention to the patients.

The executive of the Alberta Division, Canadian Medical Association, is very proud of the large attendance at the Jasper Convention as 169 Alberta physicians were present, which is almost the average for a Provincial convention. The Edmonton Committee of Arrangements has been congratulated on the efficiency of their work.

G. E. LEARMONTH

British Columbia

British Columbia congratulates the Canadian Medical Association on its successful annual meeting at Jasper. This Province was well represented and those who went are loud in their praise of the program. The setting and surroundings of Jasper ensured a very delightful time for everybody. The winner of the golf trophy was George E. Seldon of Vancouver, which was gratifying to British Columbians in general.

The annual meeting of the British Columbia Medical Association and the College of Physicians and Surgeons of British Columbia was held at Jasper at the same time as the Canadian Medical Association meeting. The election of new officers and the Board of Directors resulted in the following list of names: *President*, Dr. A. H. Spohn, Vancouver; *First Vice-President*, Dr. P. A. C. Cousland, Victoria; *Second Vice-President*, Dr. H. McGregor, Penticton; *Honorary Secretary-Treasurer*, Dr. G. O. Matthews, Vancouver; *Five Directors at Large*, Dr. G. F. Amyot, Provincial Health Officer, Dr. Murray Blair, Representative on the Executive Committee of the Canadian Medical Association, Dr. J. S. Daly, Trail, Dr. W. Ewart Henderson, Chilliwack, and Dr. A. H. Meneely, Nanaimo.

Dr. G. F. Strong, of Vancouver, has been chosen to succeed Dr. Wallace A. Wilson, now on active service, as Chairman of the Committee on Economics of the Canadian Medical Association. He is Chairman of this Committee of the British Columbia Medical Association as well and will represent the Canadian Medical Association on the Committee of Seven, appointed by the

Council. It is felt widely in British Columbia that no better choice could have been made.

The luncheon for Brigadier R. M. Gorssline, D.S.O., M.D., D.P.H., which was held at the Hotel Vancouver on June 24th, was very well attended and his speech proved to be of great interest to all who heard it. Also present at the meeting was the new D.M.O. of Military District No. 11, Lieut.-Col. Wallace A. Wilson.

J. H. MACDERMOT

Manitoba

Dr. T. A. Pincock has been appointed provincial psychiatrist in succession to Dr. A. T. Mathers, who resigned as of May 31st. Dr. Pincock was deputy minister of health and public welfare until 1930 when he became superintendent of Brandon Mental Hospital. He will take over his new duties on August 1st. Until then, Dr. G. M. Stephens, appointed acting provincial psychiatrist when Dr. Mathers retired, will continue to act, but on July 31st he is joining up for active service.

Dr. Brian Bird, assistant physician at Brandon Mental Hospital, has been appointed acting assistant medical superintendent in the Psychopathic Hospital at Winnipeg.

Replacing Dr. Pincock at Brandon, is Dr. William Glassco, formerly of London, Ontario, and a recent graduate of the University of Western Ontario. He will be acting medical superintendent at the hospital until the return of Dr. W. M. Musgrove, formerly assistant provincial psychiatrist, now on leave of absence with the Canadian Army Medical Corps. The vacancy in the Brandon Staff, due to Dr. Bird's transfer to Winnipeg, will be filled by Dr. E. Lindenfeld, a woman graduate of the University of Vienna. She is now on the staff of the hospital at Portage La Prairie. Her transfer to Brandon will be made August 1st, when Dr. Pincock comes to Winnipeg.

Accommodation for at least 100 new patients in the mental hospitals at Brandon and Selkirk will be ready within a few weeks when new living quarters are provided for members of the medical staffs and their families. The provincial department of health has completed plans and specifications for construction of six houses at an estimated cost of $6,000 each. Two are being built at Selkirk, one at Portage la Prairie, and three at Brandon.

Dr. Cyril Stevens of St. James has been appointed medical adviser to the St. James School Board.

Dr. A. T. Mathers has tendered his resignation as provincial psychiatrist. Dr. G. M. Stephens has been appointed acting provincial psychiatrist, and Dr. Mathers has become neuro-psychiatrist at Deer Lodge Military Hospital under the Dominion Department of Pensions and National Health.

The Faculty of Medicine, University of Manitoba, has received a gift of $10,000 in American funds from the W. K. Kellogg Foundation of Battle Creek, Michigan, with no stipulation as to how it should be distributed. It will be set up as a loan fund to assist medical students who will find it impossible to earn their tuition under the new speed-up course requested by the government to comply with the great demand for doctors in wartime. The acceleration program that is to graduate students in four years instead of five years, will only allow a period of seven weeks' holiday in the summer. ROSS MITCHELL

New Brunswick

Dr. F. B. Wishart has resigned his position on the staff of the Department of Public Health and has confined himself to practice at Woodstock. Dr. Wishart was previously District Medical Health Officer and tuberculosis diagnostician for the District of Carleton and York.

Dr. William Warwick of Fredericton who was for many years Chief Medical Officer, Department of Public Health was recently made life member of the Canadian Public Health Association.

Dr. H. A. Farris, Saint John, has been elected chairman of the New Brunswick Musical Festival Association succeeding Dr. C. W. MacMillan.

Dr. Alphonse Sormany, of Shediac, N.B., was made the recipient of an honorary degree of Doctor of Science by the Sacred Heart College where he was a student in pre-medical days.

Dr. H. I. Taylor, St. George, has recently been confined to the general hospital in Saint John. His friends will be glad to know that his health has been completely restored.

Dr. R. D. Smith has begun practice at Saint George, N.B.

Dr. F. D. Wannamaker has begun practice in Saint John and is specializing in obstetrics and gynæcology.

Dr. Eli Davis has accepted a position on the anæsthetic staff of the Saint John General Hospital.

At the annual meeting of the Canadian Medical Association, nine physicians of New Brunswick were in attendance, a considerable number considering the difficulty of the times. A. STANLEY KIRKLAND

Nova Scotia

The Maritime Hospital Association, more than one hundred strong, held its annual convention at Pictou Lodge. Under consideration, again, was group hospitalization, on which 13 of 29 hospitals approached had commented favourably, 5 unfavourably, and 11 not at all, because of insufficient understanding of the problem. The meeting moved unanimously to continue the study and development of group hospitalization plans.

Under fire, at the meeting, was the Workmen's Compensation Board, which pays the hospitals $2 per day for its patients. "Why", asked a delegate, "should compensation cases be accepted at a loss", and introduced a motion to refuse them admission to all hospitals of the association. Tempered by the thought that urgent cases might thus be deprived of hospital care, the motion was modified to one asking for united hospital action in bringing the matter again before the Compensation Board.

Dr. and Mrs. Matthew Allison Curry, formerly of Halifax, celebrated their 50th wedding anniversary recently at their home at Rothsay, N.B. Dr. Curry was a member of the small, faithful staff of the Dalhousie Medical School in its earliest days, and for many years a member of the surgical staff of the Victoria General Hospital.

Dr. H. G. Quigley (Dal. '32) has opened an office in Halifax's North End.

Dalhousie's 29 candidates were successful in the recent Dominion Council examinations at Halifax.

"The best set up in Canada" was the tribute of St. John's Ambulance's Lieut.-Colonel Gerald Allison, E.D., M.D., to the Dartmouth first aid organization.

Hymie Webber, of Kentville, posing as a doctor prescribed medicine to cure a fellow townsman's prostate trouble for a $100 fee, alleged the prosecution in the Kentville magistrate's court. Hymie Webber, posing as a lawyer, the prosecution further charged, collected from another neighbour a $150 fee. Which will make many a good physician doubt the wisdom of his choice in professions! ARTHUR L. MURPHY

Ontario

The Collingwood General and Marine Hospital had a disastrous fire on June 23rd. While the damage to the roof and building by fire was extensive, that caused by water and smoke will amount to many thousands of dollars. Total damage is estimated about $25,000. Little of the building escaped damage.

Excellent work was done in removing patients from the hospital. Fortunately no one was injured. The bedridden patients were removed to the nearby Parish Hall, Nurses' Residence, and private homes. The surgical theatre was busy with a patient undergoing an operation for appendicitis. The operation was rapidly but successfully completed and the patient removed from the hospital while still under the anæsthetic.

The fire appears to have originated in the attic.

Major F. Basil Bowman of Hamilton has been raised to the rank of Lieutenant-Colonel in the C.A.M.C. Overseas.

Thomas Ralph Sarjeant, B.A., M.D., of the Department of Surgery of the University of Toronto, on leave of absence on active service overseas, has been granted the diploma of Fellowship by the Royal College of Surgeons of England. J. H. ELLIOTT

Dr. Harvey Clare, Medical Superintendent of Homewood Sanitarium, Guelph, has retired owing to ill health. Dr. Clare spent 19 years in psychiatric practice in the service of Ontario Mental Hospitals, and the last 17 years with Homewood. His methods of diagnosis and treatment gained him an enviable reputation as a psychiatrist, and his opinions were widely sought, often by the Dominion Government.

Succeeding Dr. Clare, Dr. F. H. C. Baugh has been appointed Medical Superintendent. Dr. Baugh has been prominent in psychiatric work for many years. Graduating in Arts and Medicine from Queen's University, he served overseas in the Great War with No. 7 Canadian General Hospital, and later spent six years in the service of the Ontario Mental Hospitals. In 1926 he joined the Medical Staff of Homewood Sanitarium. While at the Ontario Hospital, Kingston, he taught on the staff of the University, and later at the Guelph General and St. Joseph's Hospitals. He is President of the Council of Social Services of Guelph.

Dr. A. L. MacKinnon, also well known in psychiatric work, has been appointed Assistant Medical Superintendent. Dr. MacKinnon graduated from the University of Toronto in 1924, and served his internship at the Toronto General Hospital, joining the Homewood Medical Staff in 1925. He is a lecturer in Guelph General and St. Joseph's Hospitals, and contributor of articles on psychiatric subjects to medical journals.

In 1941 Dr. MacKinnon was awarded the Meyer Memorial Prize for his paper on "The psychoneuroses" delivered before the Canadian Medical Association.

Quebec

Dr. J. C. Meakins, Dean of the faculty of medicine, McGill University, and director of the University Clinic, Royal Victoria Hospital, Montreal, has been elected an honorary fellow of the Royal Society of Medicine, London. This is the highest honour conferred by the Society.

Les médecins dont les noms suivent ont été nommés titulaires à la Faculté de médecine de l'Université Laval: Dr Jean Grégoire, sous-ministre de la Santé, chaire de Législation sanitaire; Dr Berchmans Paquet, hygiéniste de la cité de Québec, chaire de Clinique des Maladiea Contagieuses; Dr Rosaire Gingras, devient titulaire de la chaire de Biochimie; Dr Henri Marcoux, titulaire de la chaire de Chimie clinique.

Le 17ième Congrès de l'Association des Médecins de langue française de l'Amérique du Nord aura lieu à Montréal du 14 au 17 septembre. Comme par le passé, les diverses sections du congrès comporteront les questions d'intérêt général et les différentes spécialités. Cette année, on consacrera au moins deux séances à l'étude des problêmes médicaux déclenchés par la guerre. Des films scientifiques seront présentés. Des exhibits scientifiques seront exposés. Les séances du matin auront lieu dans les divers hôpitaux de langue française de la métropole tandis que celles de l'après-midi se tiendront à l'Hôtel Mont-Royal où se trouveront en même temps les quartiers généraux de l'Association. Nous donnerons dans le prochain numéro du *Journal* un résumé des principales communications. JEAN SAUCIER

Saskatchewan

Honouring the memory of medical men who practiced among the pioneers of Regina the medical staff of the General Hospital has erected a plaque in the hospital bearing names of the city's first doctors.

The medical men also paid tribute to the memory of eight members of the medical staff who have died within recent years. Their portraits have been placed in the main hall of the General Hospital.

The ceremony of unveiling the plaque and portraits was held on June 5th, at a medical staff luncheon in the hospital. Hark McPherson, chairman of the board of governors was present as a guest and Dr. S. E. Moore delivered the address in connection with the unveiling.

The plaque bears the names of eleven doctors who practiced among the early settlers of Regina. They are: Drs. Robert Cotton, Augustus Jukes, J. D. Lafferty, J. H. C. Willoughby, Henry Todd, G. Pearson Bell, I. T. Ingersol, Andrew Martin, William Dow, M. M. Seymour, and George Charlton.

Doctors now deceased whose portraits have been placed in the halls of the hospital are: Francis J. Ball, a member of the General Hospital medical staff from 1907-1928. He died in September, 1928. Thomas A. Morrison, chief surgeon R.C.M.P. from 1916-1931 and member of the medical staff of the hospital from 1912-1931. He died February 1931. C. R. Paradis. He was a member of the medical staff from 1911-1927 when he died. Wm. R. Coles, former medical health officer in Regina. He was a member of the medical staff from 1890-1940 when he died. David Low, member of the medical staff from 1890-1941. He was president of the Canadian Medical Association in 1925 and 1926. He spent more than half a century in the service of the people of Regina. H. H. Mitchell, member of the medical staff from 1911 to 1938, year of his death. He was superintendent of the Regina General Hospital. W. A. Harvie, died in 1940. He was an outstanding surgeon; member of the medical staff from 1909-1940. Col. Arthur S. Gorrell, member of the medical staff from 1907-1941. During the first great war he was medical officer for this military district. LILLIAN A. CHASE

General

Medical Discontents in France.—We get little news of our colleagues in Occupied France, but an outspoken article in *L'Œuvre* of April 19th gives some idea of their general plight and tells of particular grievances. The discontent of the medical profession, it says, cannot be denied, for this comes to light in all private conversations between doctors. Many Members of the Council of the Order—except for a few young men somewhat prematurely appointed to it and won over from the start to the methods of the iron fist and favouring authoritarian decisions—view with some disquiet the overthrow of professional traditions which were a guarantee for the patient as well as for the doctor. (The Council of the Order is the nearest French equivalent of the G.M.C.) After observing that there is no art in which long experience is more necessary before coming to a decision, *L'Œuvre* says that the decrees which

Vichy produces each day by the dozen, replacing unwritten laws, are exceptionally hard on the medical profession. More and more new tasks are being imposed upon the doctor, and his independence and his possessions are ceaselessly diminishing. When, for example, the petrol ration has to be cut the authorities take care not to meddle with the black market, or with the rations of private cars, which still take women and children for rides in Paris; but the cars of the country doctors are the first to suffer. Again the obligatory contributions for family allowances are thrice as much for the medical profession as for any other, and the state subsidizes all funds except medical funds. Why, *L'Œuvre* asks, this exception? Meanwhile the doctor in Occupied France has to shoulder many more thankless and unpaid duties than ever before. Medical certificates are perpetually in demand—certificates for the diet of his patients, which have to be renewed every month in duplicate or triplicate, for the wood and coal rations of old people, for the layettes of newborn babies, and for those who wish to take the waters. (Are we free from this plague of forms in Unoccupied England?) When the French doctor comes home tired out after long walks and the climbing of innumerable staircases of the Métro, and finally after climbing his own stairs—for he has to do without a lift—he finds awaiting him a load of clerical work in filling up reams of certificates. It is he also who is responsible for carrying out prophylactic measures against infectious disease and for keeping up to date the statistics in the Health Department of the Préfecture. That is all in the day's hard work, but to it has been added a new source of discontent. The doctor is now asked to notify to the Health Department his patients suffering from venereal disease. The whole medical profession, says *L'Œuvre*, has risen in arms over this point, such a request to denounce one's patients being in fundamental opposition to the principle of professional secrecy. The article ends with this question; Is medicine still a liberal profession, or is it to become a form of civil service?—From the *Brit. M. J.*, May 16, 1942.

The College of Physicians of Philadelphia awarded the Alvarenga Prize on July 14, 1942, to Dr. Edwin J. Cohn, Professor of Physiological Chemistry, Harvard University, in recognition of his distinguished contribution to our knowledge of blood proteins. This Prize was established by the Will of Pedro Francisco DaCosta Alvarenga of Lisbon, Portugal, an Associate Fellow of the College of Physicians, to be awarded annually by the College of Physicians on each anniversary of the death of the testator, July 14, 1883, to the author of the best memorial upon any branch of medicine, which may be deemed worthy of the prize.

Fellowships in Nutrition.—Swift Canadian Co., Limited has made available a limited number of fellowships to universities and medical schools, for research in nutrition. To be eligible for grants, projects should be aimed at one of the following objectives:

1. The development of fundamental information on the nutritive properties of foods.

2. The application of this fundamental information on the nutritive properties of foods to the improvement of the Canadian diet and health.

The Company is naturally interested in nutritional research on meat and meat products, but grants will not be strictly limited to work in these fields. Any worthwhile study on the nutritive properties of foods or the improvement of diets will be eligible for a grant. Each fellowship will be operative for one year, unless renewed, and will be granted in an amount to be determined by the scope of the project. Placement of the Fellowships in Nutrition will be coordinated by the Swift Research Laboratories. Inquiries may be addressed to Mr. J. H. Tapley, President, Swift Canadian Co., Limited, Toronto, Ontario.

At the meeting of the American Branch of the International League Against Epilepsy, held in Boston on May 18th, the following officers were elected: *President*—Wilder G. Penfield, Montreal; *Vice-president*—Charles D. Aring, Cincinnati; *Secretary-Treasurer*—Frederic A. Gibbs, Boston.

The American Congress of Physical Therapy will hold its twenty-first annual scientific and clinical session September 9th to 12th, at the Hotel William Penn, Pittsburgh, Pa. A new feature will be an hour demonstration showing technique from 5.00 to 6.00 p.m. during the days of September 9, 10 and 11. All of these sessions and the seminar will be open to the members of the regular medical profession and their qualified aids. For information concerning the seminar and program of the convention proper, address the American Congress of Physical Therapy, 39 North Michigan Avenue, Chicago, Illinois.

Book Reviews

Time and the Physician. L. F. Barker. 350 pp. $3.50. Putnam's Sons, New York, 1942.

The autobiography of Lewellys F. Barker does not quite do justice to his life. He is a man of culture, an omnivorous reader, and a writer of many medical books and articles, as well as being one of the foremost physicians of our time. However, he writes in the statistical manner of the scientist rather than the more imaginative way of the author. In the earlier part of the book this is especially noticeable. There is more about the people he has met and worked with and the places he has seen than there is about the man himself. It is only in the last few chapters where he discusses his private practice and recreation that he emerges as a human likeable person. Lewellys Franklin Barker was born of Quaker parents in Oxford County, Ontario, in 1867. After high school he became a druggist's apprentice for two years in Whitby before he entered the University of Toronto. He was Gold Medallist on graduation and served an internship at the Toronto General Hospital. Having heard much of the brilliance of Dr. William Osler, he decided to go to Johns Hopkins for further study in 1891. From then on, except for five years when he was Professor of Anatomy at Rush Medical College, he has been intimately associated with Johns Hopkins, which is one of the great loves of his life. When he began, Osler, Welch, Kelly and Mall were on the staff. From assistant resident he climbed steadily upward, working in Anatomy and Pathology as well as Medicine, taking time off for six months' study in Leipzig on the structure of the nervous system, and to be a member of a Commission which investigated diseases in the Philippines in 1899, returning by India, where he had a chance to inspect plague districts. In 1905 when Osler resigned, Dr. Barker, at 37, was made Head of the Department of Medicine at Johns Hopkins. He continued in this position for nine years until the professorship of Medicine was put on a full-time basis, a step he had long advocated. However, owing to family financial ties, he was unable to continue, and resigned to carry on private practice though he remained on the staff as clinical professor of Medicine, a step which must have been very hard to take. He is now Professor Emeritus. Dr. Barker has been highly successful as a physician as well as teacher, and has done much travelling. He believes in a three months' vacation yearly, to prolong life and keep healthy, and the study of bridge because "as men grow older they need some form of recreation that will keep them in pleasurable contact with their fellows". Both of which seem to be excellent ideas.

Rabies. L. T. Webster. 168 pp. $1.75. Macmillan, Toronto, 1942.

From the public health standpoint rabies cannot be considered a pressing problem for, in Canada at least, very few deaths are recorded from this disease. As a problem which is frequently presented to the physician, however, its importance is much greater than mortality statistics would indicate. Pasteur's experiments have been generally accepted by the medical profession as proof that early and adequate treatment of the wound caused by a rabid dog will prevent the disease, whereas inadequate treatment will end disastrously. Such an attitude appears to be an over-simplification of the situation. Since Pasteur's time many questions have been raised by scientists. Is inoculation effective in preventing rabies? Is inoculation in itself a dangerous procedure? What type of antigen is most effective? Will saliva from a rabid animal cause rabies if the skin of the victim is not broken? What is the correct way of handling an animal suspected of having rabies? These and other questions are discussed in some detail in this book.

It may come as a surprise to many that doubt should be cast on the effectiveness of vaccination. On the side of animal experimentation the results appear to have been somewhat equivocal. There does not seem to be agreement as to the value of prophylactic inoculations in protecting animals. In man it has been shown statistically that mortality from rabies is about the same, whether inoculation is started immediately or more than two weeks after the bite. It has also been shown that fatality rates are about the same, no matter what type of inoculation is used. This raises the question as to whether all vaccines are equally effective or equally ineffective.

The question, Is inoculation itself dangerous? is answered in the affirmative. Untoward effects do occur which are not commonly fatal, but which are frequent enough to give one pause for thought before initiating treatment.

The practical conclusions regarding treatment which the author draws are given in tabular form. Certainly when a person is bitten by a rabid animal the wound should be cauterized with nitric acid and vaccine treatment started at once. Factors involving judgment are the age of the patient, doubtful diagnosis in the animal, location of the wound, doubt as to whether a wound was actually inflicted.

The book constitutes an excellent and clear review of the question for physicians and veterinarians.

Surgery of the Ambulatory Patient. L. K. Ferguson. 923 pp., illust. $12.50. J. B. Lippincott, Montreal, 1942.

The purpose of this work is clearly defined by the author to be a guide for young practitioners and surgeons who carry out surgical procedures in homes or offices, thus avoiding much unnecessary expense and blockage of important bed accommodation. The writer also points out that this minor surgery is frequently very poorly done because of faulty organization and technique, whereas major procedures are on the average more successfully completed.

The book is divided into three parts. The first part treats of general principles in regard to anæsthesia for minor operations; the use of dressings, the organization of the office with a section on post-operative care. The second takes up the problems of ambulatory surgery, region by region, with a final third section devoted to lesions of the musculo-skeletal system.

This book will be of great value to general practitioners and young surgeons carrying out minor surgical procedures.

The Principles of Neurological Surgery. L. Davis, 2nd ed., 503 pp., illust. $8.00. Macmillan, Toronto, 1942.

The additions to knowledge in the author's field since the publication of the first edition in 1936, have necessitated a moderate enlargement of this book. He deals in a very satisfactory and readable way with all the more important problems of neurological surgery. His viewpoint throughout is conservative, and should, therefore, be of particular value to the general practitioner for whom the book is primarily intended. Tumours are not given undue emphasis and there are useful chapters on Cranio-Cerebral and Spinal Cord Injuries, Cranial Nerve Lesions and Peripheral Nerve Injuries. Considerable space is given to a balanced discussion of the rôle of surgery in epilepsy, in disturbances of the autonomic nervous system and in essential hypertension.

In his discussion of Hydrocephalus and Spina Bifida the author does not deal with the Arnold-Chiari deformity of the brain-stem and he does not mention the operation of frontal lobotomy. He devotes a surprisingly small amount of space to intracranial aneurysm as a surgical problem.

The book is fully illustrated with good gross photographs, photomicrographs, and x-ray photographs of the author's cases.

Internal Medicine in Old Age. A. Mueller-Deham and S. M. Rabson. 396 pp. $5.00. University of Toronto Press, 1942.

With an increasing number of people in the older-age groups the profession must pay greater attention to the diseases and degenerations accompanying the ageing process. Within the past fifty years there has been a great increase in the average age at death. The problem is indicated by these figures. Of 100,000 live births in 1935 in the United States and Canada 50,000 may expect to reach 60 years of age, 42,000 to 70, 16,800 to 80, 2,270 to 90 and 79 to 100 years. Advances in pædiatrics and public health are responsible for this change, which is bringing into being the new department of geriatrics. Just as the pædiatrician endeavours through his office and his well-baby clinics to guide the child safely into adult life, so the geriatrician must develop to guide the ageing man and woman to avoid the pitfalls in life which may influence his happiness and comfort as age advances.

The study of old age and its diseases permeates the older medical literature. Since Charcot's work in 1861 many books have appeared on the subject. Nascher in 1914 first used the term geriatrics to describe the new medical specialty and since then numerous books and papers have appeared on the subject. The authors of this volume worked on the clinical and pathological aspects of the subject in Vienna where the senior author was clinical professor of internal medicine in the University Medical School and his collaborator worked with Erdheim. In collaboration they have based the present volume mainly on their personal observations, but have carefully screened the literature of the subject as indicated by the extensive bibliography. The result is a volume of immense practical value to the physician, giving him a ready reference guide to the supervision of the health of the ageing patient. Though few physicians will become geriatricians, this or a similar volume should be on the shelves of every doctor's library.

Diseases of the Skin. F. C. Knowles, E. F. Corson and H. B. Decker. 4th ed., 621 pp., illust. $8.00. Macmillan, Toronto, 1942.

The third edition of this work was reviewed in the *Canadian Medical Association Journal* in 1936. The text, other than that dealing with the anatomy and physiology of the skin, has been thoroughly revised and many of the chapters have been rewritten. The arrangement and classification of diseases shows many changes conforming to recent conceptions of the etiology of the diseases discussed, with corresponding changes in treatment, *e.g.*, pellagra under the avitaminoses. The illustrations are clearer, a number have been replaced and new ones added. It is a splendid reference book for the general practitioner.

Language in Action. S. I. Hayakawa. 345 pp. $2.00. Harcourt, Brace & Co., New York, 1942.

No one can do much without the help of words. Even that concentration of destructive action, a high explosive bomb, has behind it the guidance of many words. And yet, of all the mechanisms with which we deal words can be the most tricky, the most baffling, and the most potentially dangerous. Many people realize these things at some time or other in varying degree but it needs a book like the one under review to put them before us in all their complexity.

It is not likely that many people will take the necessary trouble to use words as accurately as they should. It is difficult and takes time. But in this book we may learn some extremely interesting things about words. There is, for example, more in advertising than the mere impressing of ideas on people. There is the effect of exaggeration and the inevitable disappointment and distrust which it engenders in statements generally.

We can recommend the book for its clear and readable handling of an important subject.

Roentgen Treatment of Infections. J. F. Kelly and D. A. Dowell. 432 pp., illust. $6.00. Year Book Pub., Chicago, 1942.

From the time of Hippocrates, when the first case of gas gangrene was described, to 1900 A.D. when its etiology was finally determined, the mortality of this disease remained unchanged at about 50 per cent. From 1900 through the first World War and down to 1930 surgery had not materially changed this high death rate in spite of free drainage, amputations and other radical surgical procedures. For more than twenty years radiologists had been claiming successful results by the use of x-ray therapy in various acute and chronic infections and it fell to the lot of these authors in 1928 to apply it to the problem of gas bacillus infections. The book under review is a report of the methods used and the results obtained in the treatment of this and other infections.

The book also deals with other infections, such as peritonitis, in which the use of x-ray therapy has resulted in an almost equally impressive reduction of the death rate; with pneumonia, in which since the introduction of the sulfonamides the most useful field is the treatment of unresolved pneumonia; with acute and chronic parotitis and other types of infections in which this form of therapy is extremely valuable but often neglected.

The facts presented by these authors are too important to be either ignored or set aside at a time when the risk of lacerated infected wounds is greater than at any previous period in history. The statements made are either true or they are not true and the experience of most radiologists supports them as being true. The book should therefore be "required reading" for every military surgeon and radiologist and facilities should be provided to make possible the full utilization of the methods described in all millitary medical services. In civilian practice the book merits careful study by everyone whose work includes the care of acute infections.

Aircrew in Their Element. V. E. Henderson. 35 pp., illust. $0.50. University of Toronto Press, 1942.

This pamphlet was written to be used by members and prospective members of aircrew to familiarize them with the function of the body under flying conditions. It is the belief of the reviewer that the price, which is quite reasonable, generally speaking, will be sufficient to deter trainees from buying it. A price of one dollar would have facilitated payment.

In general, the information contained is simply and well presented, though there are a few inaccuracies here and there. These are not of a serious nature. It is a useful little book and it is hoped that it will reach its destined reading public.

Electrotherapy and Light Therapy. R. Kovacs. 4th ed., 735 pp., illust. $9.25. Macmillan, Toronto, 1942.

In this edition the author has expanded his original text to include rather brief discussions of hydrotherapy, massage and exercises. The discussions of these three modes of treatment are sketchy and incomplete, compared with the very thorough treatment of electrotherapy and light therapy. For example, in the use of exercises no mention is made of flat-foot exercises, of Frenkel's exercises for treatment of the incoordination of tabes dorsalis, and of breathing exercises in the treatment of asthma.

The sections on electrical and light therapy have been brought up to date and are extremely well done. On page 701 an unfortunate slip has occurred in the electro-diagnostic charts and tables where the innervation of the adductor pollicis is given as the median nerve instead of the ulnar nerve.

The section on applied physical therapy is well balanced and contains every condition that could possibly be treated by electrical or light therapy with adequate technical details for the general practitioner. One is glad to see the Elliot treatment regulator put in its proper perspective as a dry douche with similar indications and uses as the ordinary douche.

BOOKS RECEIVED

Textbook of Neuro-anatomy. A. Kuntz. 3rd ed., 518 pp., illust. $6.90. Macmillan, Toronto, 1942.

Cardiac Symptoms in the Neuroses. D. M. Baker. 50 pp. 4s. 6d. H. K. Lewis, London, 1942.

Mental Hygiene for Community Nursing. E. K. Clarke. 262 pp. $3.50. University of Minnesota Press, Minneapolis, 1942.

Housing for Health. Committee on Hygiene of Housing of American Public Health Association. 221 pp. $1.00. Science Press Printing Co., Lancaster, Pa., 1941.

From Cretin to Genius. S. Voronoff. 281 pp. $3.50. Longmans, Green, Toronto, 1942.

The Premature Infant. J. H. Hess and E. C. Lundeen. 309 pp., illust. $4.25. J. B. Lippincott, Montreal, 1941.

Live up to Yourself. D. W. Josselyn. 190 pp. $2.50. Longmans, Green, Toronto, 1942.

Your Heart. J. M. Stein. 240 pp. $3.50. Longmans, Green, Toronto, 1942.

Lymphatic System. C. K. Drinker. 101 pp. $2.25; paper, $1.50. Stanford University Press, Calif., 1942.

Treatment of the Patient Past Fifty. E. P. Boas. 324 pp. $4.00. Year Book Publishers, Chicago, 1941.

Manual of Maladies Influenced by Oxalic Acid Poisoning. A. C. Anthony. 85 pp., illust. Copies may be obtained from the author, 4254 Indiana Ave., Chicago.

The Electrocardiogram and X-ray Configuration of the Heart. A. M. Master. 2nd ed., 404 pp., illust. $8.60. Macmillan, Toronto, 1942.

Food Values in Shares and Weights. C. M. Taylor. 92 pp. $1.50. Macmillan, Toronto, 1942.

Directory of Medical Specialists. 2495 pp. $7.00. Columbia University Press, N.Y., 1942.

Annual Review of Physiology. Edited by J. M. Luck. Vol. 4, 709 pp. $5.00. Annual Reviews, Inc., Stanford University P.O., Calif., 1942.

Materia Medica for Nurses. A. M. Crawford. 5th ed., 138 pp. 4s. 6d. H. K. Lewis, London, 1942.

SUPPLEMENT

The Association

THE SEVENTY-THIRD ANNUAL MEETING OF THE CANADIAN MEDICAL ASSOCIATION, HELD IN JASPER PARK

June 15, 16, 17, 18, 19, 1942

THE Canadian Medical Association celebrated its seventy-third annual meeting and the seventy-fifth anniversary of its organization in Jasper Park Lodge, Jasper Park, Alberta, during the week of June 15th, 1942. The registration included 540 doctors and 263 ladies, bringing the total attendance to 803.

The Annual General Meeting

The Annual General Meeting was held on Wednesday evening, June 17th. At this function, Dr. A. G. Nicholls of Montreal, editor of the *Journal*, was made an Honorary Member of the Association; and Senior Membership was conferred upon the following:

Dr. William Brenton Burnett, Vancouver
Dr. George Henry Malcolmson, Edmonton
Dr. Peter McGregor Campbell, Lethbridge
Dr. William Alexander Thomson, Regina
Dr. Edward D. Hudson, Hamiota
Dr. Harry Bertram Anderson, Toronto
Dr. E. Philippe Chagnon, Montreal
Dr. Walter W. White, Saint John

Dr. Gordon S. Fahrni, the retiring President, presented a brief valedictory address.

After his installation as President, Dr. A. E. Archer gave his inaugural address.

Fraternal greetings from the American Medical Association were brought by the official delegate, Dr. Paul A. O'Leary, Rochester, Minn.

The General Council

The General Council met on Monday and Tuesday, June 15th and 16th, under the Chairmanship of Dr. T. H. Leggett, with 80 delegates present from the nine Divisions.

The following is a list of those who answered the roll call:

Drs. J. D. Adamson, Winnipeg, Man.
Harvey Agnew, Toronto, Ont.
D. C. Aikenhead, Winnipeg, Man.
J. F. C. Anderson, Saskatoon, Sask.
A. E. Archer, Lamont, Alta.
A. W. Argue, Saskatoon, Sask.
F. M. Auld, Nelson, B.C.
H. W. Baker, Woodstock, Ont.
W. G. Beaton, Winnipeg, Man.
Murray Blair, Vancouver, B.C.
E. W. Boak, Victoria, B.C.
M. R. Bow, Edmonton, Alta.
F. A. Brockenshire, Windsor, Ont.
C. R. Bunn, Red Deer, Alta.
F. T. Campbell, Calgary, Alta.
Lillian Chase, Regina, Sask.
H. B. Church, Aylmer East, Que.
F. H. Coppock, Eckville, Alta.
P. A. C. Cousland, Victoria, B.C.
Andrew Croll, Saskatoon, Sask.
L. L. Crowe, North Bay, Ont.
J. G. Cunningham, Toronto, Ont.
W. H. Delaney, Quebec, Que.
C. J. Devins, Aurora, Ont.
G. A. Dowsley, Swift Current, Sask.
H. S. Everett, St. Stephen, N.B.
G. S. Fahrni, Winnipeg, Man.
Léon Gérin-Lajoie, Montreal, Que.
J. C. Gillie, Fort William, Ont.
Gilbert Gordon, Rosetown, Sask.
Duncan Graham, Toronto, Ont.
F. W. Hall, Chatham, Ont.
J. J. Hamelin, North Battleford, Sask.
C. H. Hankinson, Prince Rupert, B.C.
R. I. Harris, Toronto, Ont.
Georges Hebert, Montreal, Que.
W. S. Holmes, Saskatoon, Sask.
H. N. Jennings, Calgary, Alta.
George R. Johnson, Calgary, Alta.
H. D. Kitchen, Winnipeg, Man.
T. H. Leggett, Ottawa, Ont.
D. Sclater Lewis, Montreal, Que.
H. D. Logan, Lindsay, Ont.
Ross Millar, Ottawa, Ont.
Ross Mitchell, Winnipeg, Man.
A. Moir, Peterborough, Ont.
H. E. MacDermot, Montreal, Que.
J. W. McCutcheon, Toronto, Ont.
D. N. MacCharles, Medicine Hat, Alta.
H. K. MacDonald, Halifax, N.S.
P. B. Macfarlane, Hamilton, Ont.
H. McGregor, Penticton, B.C.
W. J. P. MacMillan, Charlottetown, P.E.I.
A. Y. McNair, Vancouver, B.C.
Harris McPhedran, Toronto, Ont.
J. D. McQueen, Winnipeg, Man.
J. R. Naden, Vancouver, B.C.
F. S. Patch, Montreal, Que.
C. B. Peirce, Montreal, Que.
C. A. Peters, Montreal, Que.
J. B. Ritchie, Regina, Sask.
H. M. Robertson, Victoria, B.C.
O. E. Rothwell, Regina, Sask.
T. C. Routley, Toronto, Ont.
J. W. Scott, Edmonton, Alta.
G. F. Skinner, Saint John, N.B.
A. H. Spohn, Vancouver, B.C.
G. F. Strong, Vancouver, B.C.
M. W. Thomas, Vancouver, B.C.
F. F. Tisdall, Toronto, Ont.
O. C. Trainor, Winnipeg, Man.
J. A. Valens, Saskatoon, Sask.
J. Ross Vant, Edmonton, Alta.
A. F. VanWart, Fredericton, N.B.
C. J. Veniot, Bathurst, N.B.
C. C. White, Chatham, Ont.
G. M. White, Saint John, N.B.
A. B. Whytock, Niagara Falls, Ont.
D. H. Williams, Vancouver, B.C.
R. E. Wodehouse, Ottawa, Ont.
H. M. Yelland, Peterborough, Ont.

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REPORT OF THE COMMITTEE ON ARCHIVES

Mr. Chairman and Members of General Council:—

1. Your Committee on Archives reports with regret the loss of the following members by death during the past year:

Anderson, G. A., Calgary, Alta.
Archibald, C. C., Truro, N.S.
Arthur, R. H., Sudbury, Ont.
Atkinson, E. P., Oxford, N.S.

Banks, H. H., Barrington Passage, N.S.
Barker, P. W., Vancouver, B.C.
Bell, Fl.-Lt. F. J., Toronto, Ont.
Bell, John, New Glasgow, N.S.
Benson, C. F., McCreary, Man.
Biggs, G. M., Toronto, Ont.
Blagdon, Leo, Montreal, Que.
Blake, E. A., Waterloo, Que.
Bolton, E., Vancouver, B.C.
Burgess, J. H., Ottawa, Ont.
Burns, Gerald R., Halifax, N.S.

Conn, L. C., Edmonton, Alta.
Cunningham, H. C., Carman, Man.

Deacon, G. R., Stratford, Ont.
Deane, R. B., Calgary, Alta.
Dobbie, W. J., Toronto, Ont.
Doyle, W. C., Windsor, Ont.

England, F. R., Montreal, Que.

Ferguson, M., Toronto, Ont.
Ferguson, R. D., Pilot Mound, Man.

Gerow, A. L., Fredericton, N.B.
Gibson, T., Kingston, Ont.
Gillam, G. J., Toronto, Ont.
Graham, John, Brampton, Ont. (Senior Member)
Grant, Nelson P., Woodstock, N.B.
Gray, William Everett, Milltown, N.B.
Gurd, D. F., Montreal, Que. (Senior Member)

Harrington, W. J., Dauphin, Man.
Hart, J. S., Toronto, Ont.
Herbert, S. G., Winnipeg, Man.

Inksater, H. R., Calgary, Alta.
Ireland, G. R., Bengough, Sask.

Jackson, J. H., North Battleford, Sask.

Knipe, G. W., Vancouver, B.C.

Lindsay, Hugh R., Woodstock, Ont.
Locke, M. W., Williamsburg, Ont.
Logan, F. A., Toronto, Ont.
Loggie, W. Stuart, Chatham, N.B.
Lunam, H., Campbellton, N.B. (Senior Member)

Mitchell, W. T. B., Montreal, Que.
Moore, H. H., Washington, D.C. (formerly Timmins, Ont.)
Moore, James, Brooklin, Ont.
McCallum, S., Niagara Falls, Ont.
McClennan, A. W., Toronto, Ont.
McKinnon, J. P., Guelph, Ont.
Maclean, J. D., Edmonton, Alta.
McLeod, John Knox, Sydney, N.S. (Senior Member)
Macnaughton, B. F., Montreal, Que.

Nelles, A. P. F., Raymore, Sask.

Pain, Albert, Hamilton, Ont.
Phillips, J. A., Brantford, Ont.

Reid, A. R., Windsor, N.S.
Rogers, G. W., Dauphin, Man. (Past President, Manitoba Division)
Ross, G. T., Montreal, Que. (Senior Member)
Ross, James B., Montreal, Que.
Roy, John James, Sydney, N.S.
Rudolf, R. D., Toronto, Ont. (Senior Member)

Scott, P. L., Toronto, Ont.
Stuart, G. M., Cupar, Sask.
Sutton, A. E., Toronto, Ont.

Thom, J. B., Trail, B.C.

Vaillancourt, Joseph W., Quebec, Que.

Webster, T. S., Toronto, Ont.
Whillans, H. A., Victoria, B.C.
Wilson, W. A., Derby, N.B.

2. No special activities of the Committee have been carried on in the past year. It is recognized that as there is no central point for collection of all the material of historical interest in the Association, the Committee can be of most practical use in collecting information regarding this material. It would then be in a position to answer inquiries with regard to the sources where it can be obtained. Some of this information is on hand, and more will be gathered as time goes on.

All of which is respectfully submitted.

H. E. MACDERMOT,
Chairman.

Approved.

REPORT OF THE EXECUTIVE COMMITTEE

Mr. Chairman and Members of General Council:—

Your Executive Committee reports as follows:

MEETINGS OF THE COMMITTEE

3. Since its appointment, your Committee has held three meetings,—one in Winnipeg in June, 1941, and the other two in Ottawa in October, 1941, and April, 1942. A fourth meeting of the Committee will be held in Jasper Park prior to the meeting of General Council. Attendance at the several meetings has been excellent.

Approved.

THE ANNUAL MEETING, 1941

4. The Seventy-second Annual Meeting held in Winnipeg in June, 1941, was a decided success. Despite the gravity of the war situation, the attendance surpassed expectations, there being a total of 1,018 present—776 doctors and 242 ladies. An excellent program was presented with splendid attendance at all sessions. The hospitality of our local hosts, the Winnipeg Medical Society and the Manitoba Division, abounded throughout the week and materially assisted in making the Winnipeg meeting one of the outstanding conventions of the Associ-

ation. To President and Mrs. Fahrni and all those associated with them who contributed to the success of the meeting, General Council will no doubt desire to express its deep gratitude.

Approved.

THE ANNUAL MEETING, 1942

5. At Jasper Park, in June, 1942, we celebrate the Seventy-fifth Anniversary of the organization of the Canadian Medical Association. On Wednesday, October 9th, 1867, 164 members of the profession from Quebec, Nova Scotia and New Brunswick, met in the Grand Hall of Laval University under the Chairmanship of Dr. James A. Sewell, President of the Quebec Medical Society, for the purpose of organizing a Canadian Medical Association. The Honourable Charles Tupper was elected President of the newly established Association, which position he retained for two years,—the first of a long line of seventy prominent medical men who have guided the Association from a small beginning, through some precarious years including those which followed World War Number One, when only determination and courage on the part of those in charge carried the organization through an extremely critical period to one of rapid recovery and expansion which has been truly gratifying.

6. As soon as a decision was reached to hold the Seventy-third Annual Meeting of the Association in Jasper Park, the President-Elect and Mrs. Archer with the assistance of an enthusiastic committee in Edmonton, began preparations for this convention. Owing to the fact that the President-Elect and his Committee reside at a distance from the place of meeting, some unusual problems have been encountered all of which have been handled by the Committee in a most satisfactory manner. The sincere thanks of the Association are due to the President-Elect and Mrs. Archer and their colleagues for their untiring efforts during the past twelve months.

Approved.

THE ANNUAL MEETING, 1943

7. According to plans tentatively set down several years ago, your Executive Committee recommends that the annual meeting of 1943 be held in Montreal.

It was agreed that this meeting be held during the week of June 14th, 1943.

Approved.

ANNUAL MEETINGS OF DIVISIONS

8. It has been arranged that travelling teams of speakers will address the annual meetings of the New Brunswick, Nova Scotia and Prince Edward Island Divisions in July; and the Manitoba Division following Refresher Courses at Vancouver, Regina and Saskatoon in September. Your President and General Secretary propose to attend all of these meetings.

9. The Annual Meetings of the Saskatchewan, Alberta and British Columbia Divisions will be held concurrently with this session.

10. The Ontario Division held its sixty-second annual meeting in Toronto during the week of May 25th.

Approved.

HEALTH INSURANCE

11. At the Winnipeg Meeting last year, members of General Council were advised by the Deputy Minister of Pensions and National Health that considerable progress had been made in his Department in committing to paper proposals and plans for Health Insurance. The Deputy Minister further stated that he was not in a position to present details as they must be regarded as strictly confidential but that the retiring President and Chairman of General Council had been invited to a conference to discuss the proposals and that the Canadian Medical Association might again be invited to further conferences as the work of moulding and redrafting the proposals continued. He further stated that what had been done must be regarded as departmental thinking and must not be construed as indicating Governmental plans or contemplated action now or later. While General Council was left completely in the dark as to what the proposals were or might be, it was apparent that the time had come for the Association to crystallize its own views and ideas on the subject and to take such action as it saw fit to state its position to those in authority who were engaged in drafting the legislation.

12. Your Chairman and General Secretary were authorized to represent the Association in carrying on further discussions. In September, 1941, the Deputy Minister of Pensions and National Health suggested that a committee of the Canadian Medical Association be appointed to meet with himself and Dr. Heagerty to consider the draft proposals. Your representatives recommended that the entire Executive Committee be accorded this privilege. The Deputy Minister agreed and on October 22nd, the Executive Committee was received by the Honourable Minister of Pensions and National Health, Mr. Ian Mackenzie, the Deputy Minister, Dr. R. E. Wodehouse, and Dr. Heagerty. The Honourable Minister in welcoming the Committee stated very frankly that the proposals which were placed before each member of the Committee had been drafted by Dr. Heagerty at his request, that they were merely proposals and not draft Bills, and that they represented Departmental thinking only; that they had not been studied by his Cabinet colleagues; and that, up to that time, there was no understanding or undertaking of any kind within the Government with respect to the introduction of legislation regarding Health Insurance.

13. Several hours were spent by the Committee in studying the proposals clause by clause, during which time the Honourable Minister and his officers were present.

14. At the outset, your Committee was advised by the Minister that the documents which were before them were to be regarded as confidential information, for study purposes only, and their contents must not be revealed outside the Committee or taken away. The Minister suggested however that if we cared to appoint a small Committee from within ourselves to continue the study, he would have no objection to this Committee being in possession of the documents. He was most anxious to have the considered opinions and views of the Canadian Medical Association in formulating any proposals which might ultimately find their way into legislation, and for this purpose he recognized that it would be necessary for the Committee to have before it whatever might be committed to paper within the Department.

15. At the close of the day, the Executive Committee appointed a sub-committee called the Committee of Seven, as follows:

Dr. T. H. Leggett, (*Chairman*) Ottawa
Dr. G. S. Fahrni, Winnipeg
Dr. A. E. Archer, Lamont
Dr. C. J. Veniot, Bathurst, N.B.
Dr. Léon Gérin-Lajoie, Montreal
Dr. Wallace Wilson, Vancouver
Dr. T. C. Routley (*General Secretary*)

16. The Honourable Minister approved and requested this Committee to confer with Dr. Heagerty. On the following day in conference with Dr. Heagerty, it was agreed that the Committee would send a Questionnaire to the Doctors of Canada in order that the views of the profession might be ascertained, particularly in respect to the principles of Health Insurance which had been adopted by the Canadian Medical Association in previous years.

17. During the months which have intervened, your Committee of Seven has met several times in Ottawa. On each occasion conversations have been held with Dr. Heagerty. At its April meeting the Committee spent the better part of two days studying some 2,500 replies to its Questionnaire. It was abundantly clear to your Committee that the profession overwhelmingly supported the principles already laid down by the Association, the vote being roughly 90 per cent for to 10 per cent against, with the exception of voluntary hospitalization privileges which showed a vote of 1,912 for to 486 against. Here follows the Questionnaire showing recorded votes and as it has

been amended by the Committee following the study of the replies.

(1) The Canadian Medical Association has for some years past been making an intensive study of the effectiveness of Medical Services and Health Services in our own and other countries. Profound changes are occurring throughout our whole economic system and these are having their effect on our Medical and Health Services. In the event of major changes in these Services or if a plan of Health Insurance should be contemplated by Federal and (or) Provincial Governments, do you think the medical profession through the Canadian Medical Association should assist in the formulation of plans to meet these changes, or of plans which might be put forward as bases for enactment of Health Insurance?

Yes—2,144 No—49

(2) In 1934 the Association adopted a number of Principles which it felt should be included in any Health Insurance scheme under which the profession might be required to serve. These Principles were revised by the Association in 1937. During the past five years, many changes have occurred in our social and economic life and our profession has had a prolonged opportunity to consider medico-economic problems. Accordingly, the eighteen Principles as presently existing are set down here. You are asked to study them carefully and to indicate after each one whether or not it has your approval. In the event that you do not approve of a Principle, please state your alternative proposal.

Principles	*Do you approve? Answer Yes*	*No*
1. That in the Provinces where Health Insurance is established it be administered under an independent Health Insurance Commission, the majority of whom shall be representatives of organized medicine. There should be close co-operation between this Commission and the Provincial Department of Public Health with a view to making full use of preventive services.	2,357	198
2. That a Central Health Insurance Board and Local Insurance Boards be appointed, representative of all interested to advise the responsible administrative authority.	2,376	175
3. That the professional side of Health Insurance Medical Service be the responsibility of the organized medical profession through the appointment of a Central Medical Services Committee and Local Medical Services Committees to consider and advise on all questions affecting the administration of the medical benefit.	2,075	109
4. That the question of the establishment of local areas for health insurance administration be left to the decision of the individual Provinces.	2,295	221
5. That the whole Province be served by adequate Departments of public health, organized where possible on the basis of provision of individual health supervision by the general practitioner.	2,002	97
6. That "Regional Medical Officers" to act as supervisors and referees, be appointed, paid and controlled by the Commission.	2,330	120
7. That medical care for indigents and transient indigents be provided under the Plan, the Government to pay the premiums of the indigents, who then receive medical care under exactly the same conditions as other insured persons.	2,527	76
8. That the Plan be compulsory for persons having an annual income below a level which proves to be insufficient to meet the costs of adequate medical care.	2,363	181
9. That the dependents of insured persons shall be included in the medical benefit.	2,626	53
10. That the only benefit under the Plan be the medical benefit.	2,227	222
11. That the medical benefit be organized as follows:		
(*a*) Every qualified licensed medical practitioner to be eligible to practise under the plan.	2,357	96
(*b*) The insured persons to have freedom of choice of medical practitioner and vice versa.	2,383	31
(*c*) The medical service to be based upon making available to all a general practitioner service for health supervision and the treatment of disease.	2,329	87
(*d*) Additional services to be secured ordinarily through the medical practitioner.		
(1) (*a*) Specialist medical service.	2,171	126
(*b*) Consultant medical service.	2,189	107
(2) Visiting Nurse service (in home).	2,017	155
(3) Hospital care.	2,104	129
(4) Auxiliary services—usually in hospital.	2,068	103
(5) Pharmaceutical service.	1,895	313
(*e*) Dental service, arranged direct with dentist or upon reference.	1,827	228
12. That the Insurance Fund should receive contributions from the insured, the employer of the insured and the Government.		
(*a*) Payment of the premium of the insured, in certain proportions to be determined, should be made by the employee, employer and Government.	2,069	136
(*b*) Where an insured person has not an employer or where it is not practical for the Government to collect from the employer, the Government should pay in for that insured person what would be the employer's share as well as its own share of the premium.	1,904	213
(*c*) Where the insured is "indigent" or has been out of work long enough to come without the scope of the provisions of the Act as relating to an insured employee, the Government should assume payment of the full premium.	2,212	69
13. That the medical practitioners of each province be remunerated according to the method or methods of payment which they select.	2,306	154
14. (*a*) That the Schedule of Fees in any Health Insurance Scheme shall be the Schedule of Fees accepted by the organized profession in the province concerned.	2,436	73
(*b*) That all Schedules of Fees be under complete control of the organized medical profession in each Province.	2,355	82

15. That the contract-salary service be limited to areas with a population insufficient to maintain a general practitioner in the area without additional support from the Insurance Fund.	2,372	93
16. That no economic barrier be imposed between doctor and patient.	2,239	121
17. That the best possible standard of service be required of the professions and that the remuneration of the professions be consistent therewith.	2,466	23

(3) Do you consider that the eighteen principles outlined herein or as amended by you, embody all the Principles which you would desire to see included in any plans for Medical and Health Services, whether of an insurance type or otherwise?

Reported by the Divisions as overwhelmingly yes without recorded votes.

18. That provision be made for clinical teaching material for medical schools; that facilities be provided for research work; and that time be allowed for post-graduate work.

19. That the plan be actuarially studied and approved before being adopted, and actuarially checked at periodic intervals.

20. That some plan be devised for the provision of pensions for medical practitioners.

Approved.

18. Throughout its term of office, your Committee has had the benefit of advice from the Association's consulting actuary, Mr. H. H. Wolfenden, and has much appreciated his services.

19. During the winter months, the General Secretary visited the Divisions and attempted to outline the problem before the Association and the measures which had been taken to meet it. Your Committee now feels that sufficient time has elapsed to permit of free and full discussion within the Divisions and among the profession generally, and that the time has now come for the Association to define its position. We have two choices:

(1) to co-operate in the formulation of legislation; or
(2) to remain aloof—wait and see—and deal with the legislation when and if it comes before Parliament.

20. While we have no intimation as to when the Government may introduce a Health Insurance Bill, we are aware of the fact that an Advisory Committee on Health Insurance has been established by Order-in-Council; that a number of committees representing various interests in the community have been set up; and that the proposals are going to be finalized and made available for the Government. We must recognize, therefore, that if our voice is to be heard in the formative period it must be in the immediate future and not at some distant date.

21. General Council should be reminded that the Canadian Medical Association has never committed itself either in favour of or opposed to the inauguration of Health Insurance. Your Committee hopes that delegates to this annual meeting will come prepared to assist General Council to make a definite decision on the course of action which it shall follow in respect to this vitally important problem.

Approved.

The following resolution passed by the Executive Committee, was approved by General Council:

> "THAT, in as much as plans for Health Insurance are being studied by the Federal Government, the medical profession through the Canadian Medical Association should assist in the formulation of any plans which may be put forward as bases for the enactment of health insurance."

At the meeting of the New Executive Committee it was agreed that it is now the duty of the Committee of Seven to place in the hands of the Government the twenty principles which General Council considers should be incorporated in any plan of health insurance which may be formulated. It was also agreed that the Association should not undertake to write a Bill of Health Insurance; but, having handed over the principles, the Committee of Seven should keep itself informed as the drafting of the Bill proceeds in order that we may know that the principles are being incorporated; and further, the Committee of Seven should indicate to Dr. Heagerty its willingness to confer with him and his Committee from time to time to consider the draft proposals.

The Canadian Medical Association and the War

22. To avoid misunderstandings and to keep the record straight it would be well to restate the Association's position in respect to the War.

23. It will be recalled that in September, 1939, the Association offered its services to the Government in any capacity coming within its purview. Following consultations with the then Minister of National Defence, the late Honourable Norman Rogers, it was agreed that we should do two things;

(1) Make an inventory of Canada's medical man power.
(2) Appoint military advisory committees, central and divisional, who would be available when called upon.

Immediately we proceeded to do both.

24. Between 8,000 and 9,000 Doctors responded to a Questionnaire. The information was coded and tabulated and made available to all concerned.

25. Central and Divisional Advisory Committees were appointed and the military authorities advised of their availablity.

26. Since that date, your Committees throughout Canada have indicated their willingness to co-operate whenever called upon to do so. But it should be kept in mind that these committees are purely voluntary and advisory and that they have no authority whatsoever in respect to military matters which belong strictly and entirely to the medical administration of the various services.

27. The Central Committee, called the Canadian Medical Advisory Committee, has met many times in Ottawa during the past two and one-half years, and has maintained friendly relations with the senior medical officers of the services.

28. The Divisional Committees have endeavoured to assist the local principal medical officers particularly by furnishing information about Doctors in whom the Services were interested. An agreement was reached a year ago with the Navy, Army and Air Force whereby a *pro forma* would be signed by the Divisional Committee Chairman with respect to all medical enlistments in the District. It was felt that by this procedure the requirements of the military services would best be met, while at the same time the medical needs of the civilian population would be kept in mind.

Approved.

The following telegram addressed to the General Secretary at Jasper was received from the Minister of National Defence on Friday, June 12th:

"Please permit me to thank the Canadian Medical Association for their fine co-operation and assistance in the procurement of physicians for the armed forces. Your recent medical survey cards for war purposes have been placed in the records department under the Adjutant General. They have been indexed, coded, tabulated and broken down into districts, specialists, time available, ages, etc., and are now being studied for immediate utilization. 4,658 physicians have signed these cards. Of these fifty years and under, 871 have signified their desire to enlist. 305 in this age group are ready to go into medical service immediately. The balance, 566, desire to enlist within one to three months.

Kindly appoint a C.M.A. Central Advisory Committee of five members to sit as members of a (Canadian Medical Procurement and Assignment Board for Physicians) Committee with the medical heads of the Army, Navy, Air, Pensions and National Health, National War Services and National Selective Services. This Committee has received official approbation and only awaits the names of your Committee to notify all members of place and time of the first meeting. In these perilous times we know we can anticipate in the future the same wholehearted help and practical interest which your Association has generously given in the past. May your seventy-third annual meeting be most successful."

Having received the above mentioned telegram, the Executive Committee passed the following resolution:

WHEREAS the Honourable the Minister of National Defence has invited the Canadian Medical Association to appoint a Canadian Medical Association Central Advisory Committee of five members to sit as members of a (Canadian Medical Procurement and Assignment Board for Physicians) Committee, with the medical heads of the Army, Navy, Air, Pensions and National Health, National War Services and National Selective Services; and

WHEREAS this invitation would seem to offer to the Canadian Medical Association opportunities of more useful service than have obtained heretofore, not only in the field of effort implied by the title given the Committee, but also greatly increased possibilities of usefulness in many directions in the present crisis; and

WHEREAS a Canadian Medical Advisory Committee is already functioning as an integral part of the Association, having well-established connections with the Divisions;

AND WHEREAS it seems not only desirable but necessary to maintain the present continuity and status of the Canadian Medical Advisory Committee;

BE IT RESOLVED:

(1) That the Executive Committee accept the invitation of the Minister of National Defence.

(2) That the Canadian Medical Advisory Committee which consists of five members be appointed the Canadian Medical Association Central Advisory Committee.

(3) That every effort be made to maintain the present close relationship between the Canadian Medical Advisory Committee and the Divisional Advisory Committees.

The Canadian Medical Advisory Committee is composed of the following: Doctors A. E. Archer, Lamont; F. S. Patch, Léon Gérin-Lajoie, Montreal; T. H. Leggett, Ottawa, and the General Secretary.

RESOLUTION TO THE PRIME MINISTER OF CANADA

It was duly moved, seconded and agreed that an appropriate letter be sent to the Prime Minister of Canada reaffirming the desire of the Canadian Medical Association to do all in its power to assist in Canada's war effort.

HOSPITAL INTERNS

29. During the winter months and at the request of the fighting services, your committees conducted a survey of interns resident in Canadian Hospitals. To more than 600, a Questionnaire was sent stating that, on completion of internship, a place in His Majesty's Service awaited each one who was physically fit and otherwise qualified. Furthermore, each was asked to state his preference—Navy, Army or Air Force. On April 9th, the C.M.A.C and the three Senior Medical Officers went over the returns. Less than 50 per cent of the interns replied. Allowing for those who had already made arrangements to enlist, and for women, American citizens, and those who were not physically fit to enlist, the replies seemed to your Committee somewhat disappointing. It is not believed that the large number of interns who are about to leave hospitals are unmindful of their country's call. Yet, why did they not reply? The answer may be that they did not consider it necessary to indicate to a voluntary body such as ours what they proposed to do; and it may be that many had not made up their minds what they intended to do. It should also be borne in mind that it was not until late in March of this year that the Honourable Colonel Ralston, speaking in the House of Commons made the first official appeal, on behalf of the Government of Canada, for Doctors for the Canadian Army.

Approved.

MEDICAL STUDENTS

30. During the past several months, it has become increasingly apparent to the authorities in Ottawa that Canada's expanding army requires and will continue to require a large number of Doctors. To assist in meeting this need, the Government has decided to financially help medical students in the several Canadian Medical Schools. Senior students who wish to enlist and who are physically fit will be taken on the strength as privates and be deferred during 24 months of academic work and intern service upon the conclusion of which they will become medical officers. Students of the junior years are to be subsidized by loans to compensate for the loss of earning power occasioned by the accelerated medical curriculum by which approximately one calendar year will be saved in proceeding to graduation. Your Committee was consulted by the Honourable Minister of National Defence (Army) and the Adjutant General in respect to these arrangements.

Approved.

WAR SURVEY

31. In February, your Committee was asked to send out another Questionnaire to the Doctors of Canada, as the data available from the 1939 survey was obviously out of date. Some members of the Association were of the opinion that a second survey would not be of much value. However, as of this date, close upon 4,500 Questionnaires have been returned and are being coded and tabulated by the Records Department of the Federal Government. Those who are willing to serve will be contacted by the military authorities.

32. Your Committee is informed that since the Questionnaire went out medical enlistments have been accelerated. The D.M.O. of one large District reports that his present quota is up to full strength.

Approved.

The following medical enlistments were reported as at May 31, 1942:

Army	1,385
Navy	189
Air	489
	2,063
All medical enlistments in May	75
Of these, the Army received	46
Need in Army for next six months	200

Doctors for Britain

33. In January, 1941, your Committee received a request from the British Medical Association for Doctors for the R.A.M.C. What happened to this request? Here are the facts:

They were to be unmarried and under thirty.

They were to sign up for the duration of the war.

As Officers in the British Army, they would receive less pay and allowances and be subject to higher income tax than was applicable in the Canadian forces.

Under exchange regulations they could not send money back to Canada.

34. For the above reasons, the response to the invitations issued by the several Divisions to those who were eligible was almost negligible. Subsequently we proposed that the British and Canadian Governments should endeavour to iron out the problem. We recommended that the required number of Doctors be enlisted in the R.C.A.M.C. and seconded to the R.A.M.C., thus eliminating the difficulties.

35. In April, 1941, an agreement was reached between the two Governments whereby Officers in the R.C.A.M.C. would be loaned to the R.A.M.C., *but* (and this is very important) in respect to pay, allowances, etc., the officers so loaned are on the strength of Canada's army. Since that date, the matter has been in the hands of the military authorities in Ottawa who inform us that 83 Canadian Doctors have been loaned to Britain.

Approved.

Orthopædic Unit for Scotland

36. In 1941, the Canadian Red Cross Society, acting on behalf of the Scottish Board of Health asked the Association if it would be willing to organize an Orthopædic Hospital Unit to go to Scotland. This request was canvassed in all the Divisions and your Committee is glad to report that, under command of Dr. A. B. LeMesurier of Toronto, a well organized and thoroughly equipped orthopædic unit left Canada for Scotland on December 10th, 1941.

Approved.

British Medical Association War Benevolent Fund

37. The British Medical Association some time ago established a War Benevolent Fund to assist Doctors in the British Isles whose homes and places of practice had been bombed and destroyed. At the last annual meeting, General Council decided that an opportunity should be afforded the medical profession of Canada to contribute to this fund. The authority of the War Charities Board was granted to your Association and an appeal was made to the nine Divisions in support of the fund. At time of going to press, the total subscriptions received amount at $4,925.71. British Columbia was the first Province to take action and, out of the total amount received subscribed $3,337.68.

38. Your Committee recommends this fund to General Council and the Association as one worthy of the sympathetic consideration of all members of the profession in Canada. Cheques should be made payable to the Honorary Treasurer of the Association and marked for "The Canadian Medical Association Fund in Support of The War Benevolent Fund of the British Medical Association".

Approved.

Used Surgical Instruments for Britain

39. Elsewhere in the reports to General Council will be found the report of the special committee established to co-operate with the Canadian Red Cross Society in providing used surgical instruments and equipment for Britain. One appeal in the form of a letter was sent to every Doctor in Canada. As will be noted in the report of the committee, the response has been extremely gratifying. Every instrument received was carefully examined and classified by the Committee and those requiring repairs were set apart for that purpose. Hundreds of hours of time on the part of the members of the Committee were consumed in this painstaking service. To Dr. McCulloch and the members of his Committee General Council is indebted for a splendid piece of work.

Approved.

Gasoline Rationing

40. As soon as it became apparent that gasoline was to be rationed in Canada, conferences were held with the Oil Controllers' Office in respect to gasoline for Doctors' cars. It was agreed that a study should be made to ascertain what the needs were. Each of the nine Divisions co-operated in the inquiry with the result that we were able to present to the Oil Controllers' Office statistics on quantities of gasoline which would be required by the Canadian Medical Profession. Based upon the figures presented the Oil Control Board agreed upon the quantity now being provided to the medical profession. Your Committee is of the opinion that a useful purpose was served by the study.

Approved.

Department of National War Services

41. In July, 1940, your Committee was invited by the Department of National War Services to assist in outlining medical procedures to be followed in connection with trainees called up under the Act. We urged that each candidate be examined by the Doctor of his choice. This plan was adopted. Subsequently, the Committee was asked to nominate Medical Boards to examine those who were rejected in the first examination. With the co-operation of the nine Divisions, we have to report that 68 Reviewing Boards have already been established, as follows:

British Columbia	10
Alberta	3
Saskatchewan	6
Manitoba	1
Ontario	29
Quebec	5
New Brunswick	9
Nova Scotia	4
Prince Edward Island	1
	68

42. Your Committee has been informed that the help of the Association has been of distinct value to the Department.

Approved.

Co-operation

43. At its April sessions in Ottawa, your Committee was addressed by the Honourable Colonel Ralston, Minister of National Defence (Army), and Major General Letson, the Adjutant General, both of whom thanked the Association through your Committee for the co-operation it is rendering in Canada's war effort. In the discussion which followed, your Committee made it clear to these gentlemen that the Association is only too happy to do everything in its power to assist in bringing the war to a successful conclusion.

Approved.

Membership

44. Under the Chairmanship of our President, Dr. G. S. Fahrni, a special committee (now a standing committee) on Membership has been established. The report of

this committee will be found elsewhere in the proceedings of General Council. The old slogan that a chain is no stronger than its weakest link, assumes particular significance in Canadian Medical Association membership since the completion of Federation. It will be recalled that, under our present Constitution and By-Laws each of the nine Divisions is solely responsible for recruiting members from within that body for the parent Association. Not long since, a high ranking Cabinet Minister said to one of your officers, "The Canadian Medical Association does not represent the Doctors of Canada as you have less than 60 per cent of their number in your membership". It is to be hoped that the efforts of the Membership Committee, augmented and supported by every Division will be successful in increasing our membership very materially during the coming year. The time may not be far distant when our strength as measured by our membership may be tested.

45. In 1941, it was agreed that members of the Association on full time active service in His Majesty's Forces should have their membership continued without the payment of fee. Your Committee recommends that this provision again apply for the year 1942. Those members on full time active service who desire the *Journal* may purchase it at a cost of $4.00 per year.

46. Here follows a membership statement as at date of going to press. It should be noted that we show paid members only. It is anticipated that this number will be considerably increased before the close of the calendar year 1942:

MEMBERSHIP STATEMENT

JUNE 30, 1942

Province	*Paid*	*In Military Service*	*Arrears*	*Totals*
British Columbia	376	43	101	520
Alberta	532	18	0	550
Saskatchewan	282	60	37	379
Manitoba	241	23	108	372
Ontario	2,337	753	112	3,202
Quebec	611	92	42	745
New Brunswick	161	26	19	206
Nova Scotia	248	33	39	320
Prince Edward Island	27	0	9	36
Totals	4,815	1,048	467	6,330

Approved.

RESIGNATION OF THE EDITOR

47. The following Minute was adopted by your Executive Committee at a regular meeting held in Ottawa on April 10, 1942.

"The Executive Committee desires to record its sincere regret that the state of his health has compelled Dr. Nicholls to relinquish the active duties of editorship of the *Journal*.

Dr. Nicholls had achieved success in many fields when he became Editor of the *Journal* twelve years ago. His editorship has been notable in many respects. Under his capable guidance the *Journal* has made remarkable progress. There has been a steady improvement in the quality and arrangement of its contents, and the aim of making it a medium for the expression of the best work in Canadian medicine has been steadily kept in view. Dr. Nicholls' scholarship and tenacity of purpose have been responsible for the consistently fine standard of presentation. Of equal importance in maintaining the *Journal* has been his urbanity and courtesy in a widely spread association with the profession throughout the Dominion.

His accomplishments in the world of letters are familiar to all. From the earliest days of his professional life he has been associated with medical literary work, notably at the outset with the late Professor J. G. Adami. His interests in the literary field have been kept continually fresh and the *Journal* throughout his editorship has been enriched with a steady flow of clear, authoritative and timely contributions on a wide variety of subjects.

The mutual relationship between Dr. Nicholls and the Committee has always been of the happiest and most harmonious nature. We acknowledge with deep regret the unavoidable necessity prompting his retirement, but are happy that Dr. Nicholls is willing to act in a consulting capacity and that the *Journal* may still have the continued benefit of his wise counsel and long experience in maintaining it at the high standard of excellence which it had attained under his efficient guidance. We desire to add our hearty wishes for his continued health and happiness." Your Committee has appointed Dr. Nicholls Consulting Editor for the year beginning July 1, 1942.

Approved.

HONORARY MEMBER

48. As a mark of appreciation of Dr. Nicholls' long and outstanding service to the Association, your Executive Committee recommends that he be elected at this annual meeting to Honorary Membership in the Association.

Approved.

SENIOR MEMBERS

49. In accordance with the provision of Chapter 2, Section 3 of the By-Laws, the following Senior Members were elected by your Executive Committee at a regular meeting of the Committee held in Ottawa on April 10th, 1942:

Dr. William Brenton Burnett, Vancouver.
Dr. George Henry Malcolmson, Edmonton.
Dr. Peter McGregor Campbell, Lethbridge.
Dr. William Alexander Thomson, Regina.
Dr. Edward D. Hudson, Hamiota.
Dr. Harry Bertram Anderson, Toronto.
Dr. E. Philippe Chagnon, Montreal.
Dr. Walter W. White, Saint John.

These gentlemen have been invited to be present at the Annual General Meeting on the evening of Wednesday, June 17th, to receive their certificates and badges.

Approved.

APPOINTMENT OF EDITOR

50. Your Committee wishes to announce that, following the resignation of Dr. A. G. Nicholls, Dr. H. E. MacDermot, Assistant Editor of the *Journal*, has been appointed to the editorship, effective July 1st, 1942. Your Committee feels that Dr. MacDermot is exceedingly well qualified for the post and that his appointment will receive the unanimous endorsation of General Council.

Approved.

CERTIFICATION OF SPECIALISTS

51. In the event of health insurance being inaugurated in Canada, it would appear that specialists in the various branches of the profession should be clearly defined and certified. Your Committee proposed to the Royal College of Physicians and Surgeons of Canada that it was the proper body to undertake this duty. We have to report that the following specialties have been approved for certification.

Dermatology and Syphilology.
Ophthalmology.
Otolaryngology.
Pædiatrics.
Radiology.
Urology.
Anæsthesia.

52. It is our understanding that consideration is being given to the definition of the other specialties.

Approved.

NARCOTICS

53. The attention of your Committee was called to the fact that certain pharmaceutical companies had issued printed prescriptions containing narcotics, requiring only

the signature of the prescribing physician. When asked for its opinion by the Narcotic Division of the Department of Pensions and National Health, your committee stated that it did not approve of such action on the part of the pharmaceutical houses and recommended that the practice be stopped. The prescribing of medicines is a matter which should remain with the individual physician rather than that ready made prescriptions should be handed to him merely for his signature. It is our understanding that the Narcotics Division is in agreement with the position which your Committee has taken in the matter.

Approved.

Treatment of Drug Addicts

54. Judging by the reports coming from the various Provinces it would appear that facilities for the treatment of drug addicts leave much to be desired. It has been suggested on more than one occasion that adequate provision for the treatment of those addicted to drugs should be made by the Federal Government. It must be pointed out, however, that, under the British North America Act, health matters come under the jurisdiction of the individual Provinces and, therefore, it is the responsibility of each province to make such provision as it sees fit for the treatment of drug addicts rather than look to the Federal authority to undertake the responsibility.

Approved.

Section of Gastro-Enterology

55. After receiving a petition from a number of members recommending that there be established in the Association a scientific Section of Gastro-Enterology, the matter was referred to the several Divisions for an expression of opinion. Based upon the replies received, your Committee does not recommend that a Section of Gastro-Enterology be established within the Association at this time.

Approved.

Osler Lecture

56. Due to illness, the Osler Lecturer for the year 1941 was unable to attend the annual meeting and present his paper. Your Committee is glad to report that the lecturer, Dr. C. D. Parfitt of Toronto, has agreed to present the paper at the annual meeting this year.

Approved.

Lister Lecture

57. Due to the fact that the postponed Osler Lecture is to be presented at this annual meeting, and for other reasons associated with the war, the Committee on Awards, Lectures and Scholarships recommended that the Lister Lecture scheduled for 1942 be postponed. Your Committee concurred in this recommendation.

Approved.

Sir Frederick Banting Memorial

58. Under the Chairmanship of Dr. Harris McPhedran, a special committee was appointed to consider and report upon the advisability of establishing within the Association a Sir Frederick Banting Memorial. The Committee reported as follows:

It is proposed that the most suitable memorial to Sir Frederick Banting should take the form of research scholarships for the advancement of knowledge in clinical medicine or clinical surgery.

These scholarships to be known as the Banting Memorial Scholarships.

A fund to be set aside or raised of sufficient amount to provide an income in the amount of $2,500.00 per annum, plus or minus. This fund to support two scholarships of equal amount.

Tenancy of each scholarship shall be for one year, which may be extended to two years if in the opinion of the committee such extension is warranted.

These scholarships to be open to graduates of the Medical Faculty of any Canadian University.

The research work under these scholarships to be done in any recognized research laboratory of a Canadian University where special facilities may be available for the study of the particular problem.

Nomination of candidates for these scholarships may be made by the Medical Faculty of any Canadian University or any recognized medical group to a special committee of the Canadian Medical Association to be known as the Banting Memorial Committee.

59. Your Executive Committee was of the opinion that the present time might not be considered propitious for launching such a plan. The Committee desires, however, to inform General Council of the progress which has been made in considering such a memorial.

Approved.

In discussing this matter, reference was made to the following resolution passed by the Ontario Division:

> "THAT this Board of Directors go on record as being in favour of proceeding immediately with the collection of funds for the Sir Frederick Banting Memorial."

It was duly moved, seconded and agreed that this question be referred to the Divisions for an expression of opinion.

Public Relations

60. The British Columbia Division recommended last year that a Committee on Public Relations should be established within the Association to carry out the functions indicated by the title of the Committee. The matter was referred to the nine Divisions for an expression of opinion. To date five Divisions have been heard from, all approving. This matter is referred to General Council for consideration.

Approved.

Constitution and By-Laws

61. Now that all Provincial Medical Associations have become Divisions of the Canadian Medical Association, the Committee on Constitution and By-Laws will present to General Council this year for approval the consolidated Constitution and By-Laws. The text has been published in two issues of the *Journal* preceding this meeting, thus satisfying the requirements of the Constitution and By-Laws in respect thereto.

Approved.

Immunization Procedures

62. Following the 1940 meeting, the Section of Pædiatrics of the Association recommended that a useful purpose would be served if a pamphlet on immunization procedures were prepared and distributed to the profession generally. Your Committee concurred in the recommendation provided it were found to be acceptable to the Departments of Health of the several provinces. Subsequently, the Section reported back that not only would the Provinces approve of such a pamphlet but they would be willing to pay for its printing and distribution. Action was taken and your Committee now reports that the information is being distributed in each Province under the joint auspices of the Department of Health and the Canadian Medical Association.

Approved.

Cancer

63. The activities of your Department of Cancer Control were hardly under way before the intervention of the war. During the past year it has become increasingly apparent that depleted hospital staffs with concomitant increase in the amount of work falling upon the shoulders of those who were left has made it very difficult for Hospital Cancer Study Groups to function. The result has been that the majority of the Provinces have come to the conclusion

that they will not be able to do justice to this program until the war is over.

64. Your Committee is of the opinion that it will be difficult if not impossible to carry on during these war days with a cancer program based upon the original plans laid down for the Department. It is believed, however, that the foundations have been laid for future successful developments and it is hoped that in the not too distant future, the program may be expanded and accelerated throughout Canada as a whole.

65. Meanwhile, such activities as may be sustained will continue. At the moment your Cancer Committee is studying and appraising the various efforts which are being advanced to fight cancer with a view to bringing them into a common focus for a united attack against this disease.

Approved.

EPIDEMICS

66. In the Spring of 1941, your Committee appointed a special committee under the Chairmanship of Dr. O. C. Trainor of Winnipeg to consider the possibilities of post-war epidemics and what organization should be set up to combat them. Elsewhere in the proceedings of General Council will be found the report of this Committee. Happily, during nearly three years of war Canada has been spared the ravages of devastating epidemics. It is to be hoped that the health of our people will continue on this high level. However, it is considered wise for the profession and the public to be prepared to meet such a contingency should it arise.

Approved.

SUN LIFE GRANTS

67. Since 1926, the Association has been the recipient of very generous annual donations from the Sun Life Assurance Company of Canada. For seven years we received an annual grant of $30,000 for extra-mural post graduate activities. For fourteen years, we have received an annual grant ranging from eleven to fifteen thousand dollars for the maintenance of our Hospital Service Department. The Association is under a deep debt of gratitude to the Sun Life Assurance Company of Canada for its generous support of our activities. General Council will no doubt desire to record once again its appreciation for these magnificient benefactions.

Approved.

LIFE INSURANCE

68. Your Committee learned with concern that the Alberta Government which has entered the Life Insurance field had decided to offer the medical profession a fee of $3.00 for life insurance medical examinations. We understand that the Alberta Division together with the College of Physicians and Surgeons of the Province has strongly objected to the proposal and has made every effort to persuade the Government to adhere to the regular $5.00 fee. Your Committee notes with satisfaction that the Canadian Life Insurance Officers' Association agrees with the position taken by the medical profession. It is hoped that this matter will be settled in line with the present scale of fees which the regularly constituted Life Insurance Companies of Canada have long since recognized as being fair.

Approved.

AFFILIATION

69. During the year, your Committee has received applications for affiliation from the following Societies:

Second Canadian Division Medical Society Overseas.

Third Canadian Division Medical Society Overseas.

Fifth Canadian Division Medical Society Overseas.

The Gander Medical and Dental Society, Sir Frederick Banting Memorial Hospital, Gander, Nfld.

Most heartily is it recommended to General Council that affiliation in each instance be approved.

70. In this connection, it is interesting to note that our colleagues overseas desire to continue close relationships with the parent Association. To every Canadian doctor serving anywhere in His Majesty's Service General Council will no doubt desire to extend cordial greetings and good wishes at this time.

Approved.

CONCLUSION

71. In addition to the items enumerated in this report, the attention of your Committee has been directed during the year to many other matters all of which have a bearing upon the interest and activities of the medical profession of this country. Your Committee desires to extend its thanks to all those who have assisted in carrying on the work of the Association during the year.

Approved.

All of which is respectfully submitted.

T. H. LEGGETT,
Chairman.

T. C. ROUTLEY,
General Secretary.

REPORT OF THE MEMBERSHIP COMMITTEE

Mr. Chairman and Members of General Council:—

On behalf of the Committee on Membership I beg to make the following report:

72. Personnel of this Committee consists of, in addition to the Chairman, one physician from each province, as follows:

Prince Edward Island.....	Dr. W. J. MacMillan, Charlottetown
Nova Scotia.....	Dr. H. G. Grant, Halifax
New Brunswick...	Dr. A. S. Kirkland, Saint John
Quebec.....	Dr. Léon Gérin-Lajoie, Montreal
Ontario.....	Dr. Harris McPhedran, Toronto
Manitoba.....	Dr. W. G. Beaton, Winnipeg
Saskatchewan.....	Dr. J. A. Valens, Saskatoon
Alberta.....	Dr. Geo. R. Johnson, Calgary
British Columbia..	Dr. M. W. Thomas, Vancouver

73. Your Special Committee on Membership last year submitted a report to the Annual Meeting of Council, but so far as I am able to learn, no action was taken to implement the recommendations. Your Committee of this year is of the opinion that there are several recommendations of importance in the report which should be brought before the General Council again this year and accordingly I am including them in this report.

74. There has been all too little interest in membership in the Canadian Medical Association by far too many of our profession, and it is with a view to enquiring into this situation in the hope that something constructive may be offered that this report is submitted.

75. It is difficult to assess the different factors which account for this indifference to membership, but we think we may place near the top in this category the regrettable failure on the part of many of us to appreciate our responsibility as units of organized medicine.

76. It is not our purpose to go at length into this whole question at this time, but we would suggest that a standing committee on membership might well serve a usefull function and, over a period of years, do a great deal in breaking down the barriers, imaginary or otherwise, which seem to have existed.

77. We are particularly interested in getting the younger men enrolled as members and can think of no better time to start than the present. It is suggested that the time to enroll into membership the graduate in medicine, is when he grows out of the activities of the student body.

If he enters hospital internship, or takes other forms of graduate training or goes into practice, some provision should be made to take him into the fold, so to speak, so that he will feel truly a part of the medical profession. There is too great a tendency for these young graduates to feel themselves outside the fold and alone in the world and, as the years slip by, habits of isolation develop and sometimes bitterness and as they become increasingly independent, the spirit of individualism predominates. They have never learned the pleasure of friendly and instructive intercourse with fellow physicians, seen at its best at medical meetings, nor have they felt the sense of satisfaction that comes from a little effort in the direction of advancing the common interest and usefulness of the whole profession.

78. It is our opinion that if we can take these young men into our organization when they leave the student body, we are making at least a good beginning in introducing them to the responsibilities of organized medicine and giving them an opportunity of periodically meeting their fellow practitioners in a social way as well as in the study of scientific subjects. In order to bring this about it would seem reasonable to have some special provision for dues for these recent graduates who can hardly be expected to pay the membership fee during their intern years and this membership without fee might be carried to their first year in practice, then half fee for the second and third year and full fee thereafter. The graduating class should be addressed each year by some authority on organized medicine. It is probably unnecessary to state that the advantage of membership should be a greater factor than the reduction of fees. It is recommended that this arrangement should be made retroactive to the beginning of the war for the following reasons: Many of our young medical men have joined the forces since 1939. Some of these had been in practice only a year or so and many have gone into the services on graduation or from internships.

79. Surely these doctors should all be members of the Canadian Medical Association and we should accept them in our stride as a war measure. It would strengthen our position during the war and fortify us to meet post-war problems.

80. Before any conclusive action is taken it would, of course, be necessary to get the reaction of the Divisions and it would seem equitable to infer that some consideration in reduction of fees for recent graduates would be considered by them for Divisional Membership, as our constitution now demands membership in the Divisions as a preliminary step to their recommendation for Canadian Medical membership.

81. The matter of Divisional co-operation in any plan such as suggested is complicated by the arrangement, legislative and otherwise, with the College of Physicians and Surgeons in some of the Divisions. This applies only to the three Western Provinces, British Columbia, Alberta and Saskatchewan.

82. Two provinces, Ontario and Manitoba, already have a reduced fee schedule for recent graduates.

83. We think we may note that more and more the Canadian Medical Association is depending on the Divisions for membership, all of which no doubt is as it should be, but it does suggest that our advancement depends a great deal on the activity and capabilities of the Divisions.

84. Our membership represents only a little over 50 per cent of the physicians in Canada. We have suffered from this in that our efforts at Parliament Hill do not carry as much weight as they would if our membership were closer to 100 per cent. This is particularly noticeable from the point of view of our French Canadian membership which, as you know, is very low, and, for the past year the Executive has considered this problem at each of their meetings and through the good offices of our French-speaking colleagues on the Executive, Dr. Gérin-Lajoie and Dr. Veniot, an attempt has been made to contact and enroll a higher percentage of the French-speaking physicians of Quebec, but with very little success so far.

85. The ideal, of course, would be to have 100 per cent membership across the country. This is true in one province only, *viz.* Alberta, and here a single fee is paid for membership in the College of Physicians and Surgeons, Canadian Medical Association, and Alberta Division of the Canadian Medical Association.

86. During the past year the Ontario Division has taken a forward step and has agreed to have a common membership fee for the Canadian Medical Association and the Ontario Division. In other words, a physician cannot be a member of one of these associations alone. The fee has been fixed at $15.00.

87. The Chairman has interviewed members of the four Western Divisions on this question and I am happy to say that the Saskatchewan Division has already taken preliminary action in the hope of arranging for a consolidated fee. We would respectfully suggest that all Divisions, not having a consolidated membership fee, should be approached with this object in view.

SUMMARY

88. It is recommended:

1. That the work of this committee be continued.
2. That an address to each graduating class be given by an authority of organized medicine.
3. That graduates since 1939, now in the armed forces, be enrolled into some special form of membership for the duration of the war.
4. That some form of recognition be given these new members periodically. It is suggested that some communication on Canadian Medical problems be sent to them at least once or twice a year.
5. That each Division not having a consolidated fee, be approached in the hope that some arrangement might be made whereby membership in the Division is contingent on membership in the Canadian Medical Association. (The reverse of this being literally true at present.)

All of which is respectfully submitted.

GORDON S. FAHRNI,
Chairman.

Approved.

Following discussion on this report, it was duly moved, seconded and agreed:

1. THAT membership in the Canadian Medical Association be extended to all doctors on full time military service when a request for such membership is received from the Division in which the doctor has been resident, provided that this privilege of membership without fee has already been extended by the Division making the application, it being understood that such membership shall not include the *Canadian Medical Association Journal.*
2. THAT some form of recognition be sent periodically to men on military service, the particular type of the communication to be left to the Chairman, the Editor of the *Journal* and the General Secretary.
3. THAT a special effort be made to secure as members of the Association all young men immediately after graduation.
4. THAT each of the Divisions be asked, in so far as possible to make their Divisional Membership contingent upon Canadian Medical Association membership, as has been done in some of the provinces; and that a covering letter be enclosed showing the arrangement whereby membership has been obtained in each province, and the results obtained by provinces having adopted a composite fee.

REPORT OF THE COMMITTEE ON CREDENTIALS AND ETHICS

Mr. Chairman and Members of General Council:—

The Committee on Credentials and Ethics begs to report as follows:

89. In August 1941, the question was raised of the propriety of an ophthalmologist receiving a rebate from an optician who dispenses glasses on the prescription of the ophthalmologist. The giving of the rebate was stated to be apparently without the knowledge of the patient. The opinion of your Committee was that the point in question was covered by the paragraph on Secret Commissions, pages 7 and 8, Code of Ethics (1939).

> "The receiving of commissions connected with the sale of a commodity or with the referring of patients is entirely unethical conduct."

90. In September and again in March the question was raised whether it is ethical for a physician to obtain a patent for a medical device which he has perfected. This question was referred to the Nucleus Sub-Committee in Winnipeg and the following is a summary of views of the members:

1. The inventor or original designer of a medical device or surgical instrument may protect his discovery by obtaining a patent. Unscrupulous persons would thus be prevented from stealing and capitalizing another man's idea.

2. The Code lays down the general rule: "For the honourable physician the first consideration will always be the welfare of the sick. . . He does not multiply costs without need." Under the heading "Discoveries", the Code states: "No advance or discovery in any branch of medical science made by a physician should ever be capitalized or marketed by him in any way for his personal gain, or kept secret for his private advantage. Such an advance or discovery should be made common for the advantage of the whole profession and for the progress of science. There are well recognized methods by which physicians can place their work before those who are fitted by education and experience to judge them."

3. The administration of royalties derived from the sale of the device or instrument might be vested in a corporate body such as a University, for the prosecution of research or some project of benefit to the public.

91. The Winnipeg Medical Society in November passed a motion that all new members on being received into the Society should be presented with a copy of the Constitution and By-Laws of the Society and of the Code of Ethics of the Canadian Medical Association. This motion has been put into practice, and the idea is passed on as a suggestion to other medical societies. The great majority of infringements of the Code of Ethics are due to ignorance or thoughtlessness rather than deliberate intent.

All of which is respectfully submitted.

ROSS MITCHELL,
Chairman.

Approved.

REPORT OF THE MANAGING EDITOR

Mr. Chairman and Members of General Council:—

I have the honour to present the report of the Managing Editor for the year ending December 31, 1941.

92. From a financial point of view, the operations of the *Journal* have been very successful. Our advertising revenues have increased to a record figure and our production costs, while greater than usual, have only been those which arise from the greater volume of advertising carried by the *Journal.*

93. The outlook for 1942 must be viewed conservatively. The new rates may help our revenues but on the other hand, war activities will interfere with the manufacture of goods for civilian use, and may have an adverse effect on our advertising receipts. On the good side, we are informed that the printing charges for the *Journal* are not likely to show any marked increase in the immediate future.

94. We are still indebted to the Board of Censors for the gradual improvement in the character of advertising material.

95. The report of the Managing Editor would not be complete without some reference to the impending changes in the editorial direction of the *Journal.* As you have been informed, Dr. Nicholls has asked to be relieved of his duties for reasons of health, but we are glad that he will be able to continue his association with the *Journal* in a consulting capacity.

96. The *Journal* under his direction has shown many changes not alone in size but also in the more important sphere of scientific value, and it is being paid the compliment of increasing numbers of references in the medical literature.

97. We hope that with the relief from the burdens of office, Dr. Nicholls will be granted a return of health.

98. We are fortunate in having in Dr. H. E. MacDermot one whose abilities are so well known to us. During Dr. Nicholls' illness, he has been responsible for editing the *Journal* and under his editorial guidance, the Association may look forward with confidence to the future.

All of which is respectfully submitted.

D. SCLATER LEWIS,
Managing Editor.

Approved.

REPORT OF THE HONORARY-TREASURER

Mr. Chairman and Members of General Council:

I have the honour to present the report of the Honorary-Treasurer for the year ending December 31, 1941.

99. The accounts have been audited by Messrs. McDonald, Currie and Company whose certified financial statements are attached. The receipts and disbursements of the General Secretary in Toronto, as shown in a statement certified by Mr. Dignam as auditor, have been incorporated in the books of the Association.

REVENUE

100. Your Association has weathered the storms of the past year remarkably well. While the revenues show a shrinkage of about $5,000.00 from the record year of 1940, they are still above the average for the past ten years. In spite of the fact that 327 members were on overseas service at the beginning of 1941 and consequently paid no fees, our revenue from membership and subscriptions is only $531.93 below the 1940 figure. On the other hand, our advertising income shows a considerable increase.

EXPENDITURES

101. On the expenditure side there are no new items. Your attention should be drawn to the constantly increasing travelling expense account and the year 1942 will probably show a still greater increase due to the special meetings of the Committee of Seven.

102. The *Journal* costs have also increased to a moderate extent. The larger advertising revenues have necessitated more printing and the payment of increased commissions to our advertising agents.

103. As a result of the Association's activities, I am pleased to report a surplus of $3,886.63 for the year under review.

INVESTMENTS

104. Early in 1941, the financial adviser of the Association, who had served us for many years, retired from business because of ill health. The Executive Committee appointed the Royal Trust Company of Montreal to succeed him.

105. With the advice of the Trust Company, certain changes in our investments were carried out during the year. In the General Fund, certain civic and provincial securities were replaced by Dominion of Canada and Province of Ontario bonds with a capital loss of $586.36, while in the Trust Fund accounts, some $5,000.00 of similar bonds were replaced by Dominion of Canada obligations with a small capital profit.

The details of these changes are as follows:

106. GENERAL FUND

SOLD

$1,000.00 Montreal Metropolitan Commission, 4½%, due November 1, 1961; bought July 31, 1936 at par; sold November 27, 1941, at $98.00 less tax and commission; capital loss $21.82.

$8,000.00 Montreal Metropolitan Commission, 4½%, due May 1, 1962; bought August 31, 1935, at $102.75; sold November 27, 1941, at $97.50 less tax and commission; capital loss $434.55.

$2,000.00 Montreal Metropolitan Commission, 5%, due November 1, 1949; bought December 31, 1924, at $100.30; sold November 27, 1941, at $100.50 less tax and commission; capital profit 29c.

$5,500.00 Province of New Brunswick, 3¼% debentures, due August 1, 1949; bought February 28, 1939, at $97.25; sold November 27, 1941, at $95.00 less tax and commission; capital loss $130.28.

REDEEMED

$5,000.00 Province of Prince Edward Island, 3% investment certificate; held since November 22, 1938; redeemed at $5,000.00.

PURCHASED

$12,000.00 Dominion of Canada, 3% Victory Loan 1941 bonds; due June 15, 1951; bought November 27, 1941, at $100.00 plus commission.

$9,000.00 Province of Ontario, 3% debentures, due November 1, 1950; bought November 27, 1941, at $99.68 plus commission.

107. BLACKADER LECTURE FUND

SOLD

$3,000.00 City of Three Rivers Roman Catholic School Commission 5½% bonds, due May 1, 1944; bought June 27, 1930, at $100.97 plus tax; sold November 27, 1941, at $102.00 less tax and commission; net capital profit $24.38.

PURCHASED

$3,000.00 Dominion of Canada Bonds, 3%, due June 1, 1958; bought November 27, 1941, at $99.50 plus commission.

108. OSLER SCHOLARSHIP FUND

SOLD

$2,000.00 City of Montreal Protestant School, 5%, due January 1, 1952; bought January 18, 1930, at $99.75 plus tax; sold November 27, 1941, at $101.00 less tax and commission; net capital profit $20.68.

PURCHASED

$2,000.00 Dominion of Canada Bonds, 3%, due June 1, 1958; bought November 27, 1941, at $99.50 plus commission.

109. OSLER MEMORIAL FUND

NEW INVESTMENT: CAPITAL SURPLUS $100.00

$100.00 Dominion of Canada 3% Victory Loan 1941 bonds; due June 15, 1951; bought November 27, 1941, at $100.00 plus commission.

As a result of these transactions, we have suffered a loss in revenue of $203.75 in the General Funds and $115.00 in all in the Trust Fund revenues but the character of our investments is improved. I am pleased to report that approximately 45 per cent of our total investments are now in Dominion of Canada securities.

110. NEW INVESTMENTS FOR GENERAL FUND

During the year, the Association bought $5,000.00 Dominion of Canada First Victory Loan 3% bonds at par.

111. Advertising Rates

The question of our charges for advertising space has been under consideration for some time. During the business depression it had not been thought wise to change the rate structure in spite of the fact that our circulation figures were constantly increasing. However in April, 1941, it was felt that an increase could be delayed no longer and the *Journal* announced an average increase of 18 per cent over the old rates. The new rates have been well received.

112. Hospital Service

The Hospital Service Department is indebted once more to the Sun Life Assurance Company of Canada for its generous grant of $11,000.00 which makes possible the continuation of this most useful activity of the Association. Our thanks are due to the Company for its continued support.

All of which is respectfully submitted.

D. SCLATER LEWIS,
Honorary-Treasurer.

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113. Statement No. 1

BALANCE SHEET AS AT 31st DECEMBER, 1941

Assets			Liabilities		
Cash on Hand:			Accounts Payable		$ 67.40
Montreal	$ 25.00		Accrued Charges		38.85
Cash in Bank:			Advertising Prepaid		17.10
Montreal	$14,750.82		Prepaid Membership Fees, 1942	$ 629.40	
Toronto:			Prepaid Subscriptions, 1942	1,132.90	
General Funds	28.75				1,762.30
Annual Meeting	4,899.62		Trusts—as per Schedule No. 2		34,002.79
	19,679.19		Special Grants—as per Schedule No. 3		14,067.90
		$19,704.19			
Accounts Receivable:			Surplus Account:		
Advertising	$1,560.11		Balance at Credit—		
Reprints	183.22		1st January, 1941	$113,198.05	
Special Reprints	29.89		*Deduct*—Loss on Sale of Investments	586.36	
Trust Funds and Special Grants	54.04			$112,611.69	
Sundries	42.49		*Add*—Excess of Revenue over Expenditure for the Year	3,886.63	
		1,869.75			116,498.32
Investments:					
At Book Value, Schedule No. 1	$95,234.42				
Accrued Interest	734.26				
		95,968.68			
Copies of History of Canadian Medical Association on Hand (at depreciated net cost)		213.96			
Trust Funds—as per Schedule No. 2		34,002.79			
Special Grant Funds—as per Schedule No. 3		14,067.90			
Furniture and Equipment—*Less* Depreciation		627.39			
		$166,454.66			$166,454.66

Submitted subject to our report of this date.

(Signed) McDonald, Currie & Co.,
Chartered Accountants.

Montreal, 10th February, 1942.

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114. AUDITORS' REPORT

Montreal, 10th February, 1942.

Dr. D. Sclater Lewis,
Honorary-Treasurer,
Canadian Medical Association,
3640 University Street, Montreal.

Dear Sir:—

We have audited the books and accounts of the Canadian Medical Association for the year ended 31st December 1941.

The receipts and disbursements of the General Secretary in Toronto, as shown on a statement certified to by Mr. Dignam as Auditor, have been incorporated in the books.

We verified the cash on hand and in bank and received confirmation of the securities which are held in safekeeping for Investment Account and for Trusts.

We found the books and accounts in good order and were given every assistance in the carrying out of our audit.

Subject to the foregoing remarks, we report that, in our opinion, the above Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the Association's affairs, according to the best of our information and the explanations given to us and as shown by the books of the Association.

Yours faithfully,

(Signed) McDonald, Currie & Co.,
Chartered Accountants.

115. STATEMENT No. 2

STATEMENT OF REVENUE AND EXPENDITURE FOR YEAR ENDED 31ST DECEMBER, 1941

REVENUE		EXPENDITURE		
Membership Fees	$33,637.90	JOURNAL EXPENSES:		
Subscriptions	4,151.50	Printing	$26,776.22	
Advertising	32,698.76	Illustrations	874.53	
Special Reprints	194.58	Agents' Commissions	4,306.71	
Sundry Sales of *Journal*	262.17	Editorial Salaries	9,300.00	
Excess Revenue from Annual Meeting—as per Statement No. 3	950.63	Editorial Expenses	1,161.48	
				$42,418.94
Revenue from Investments and Bank Interest	3,495.95	ADMINISTRATION AND FINANCIAL EXPENSES:		
		General Expenses	$ 653.56	
		Unemployment Insurance	29.50	
		Travelling Expenses	7,620.00	
		Office Expenses — General Secretary	528.25	
		Postage	892.81	
		Salaries:		
		General Secretary's Office (including expense allowance) $15,814.16		
		Journal Office 4,734.00		
			20,548.16	
		Stationery and Printing	806.82	
		Telephone and Telegrams	513.74	
		Bad Debts	64.39	
		Discount and Exchange (Net)	103.04	
		Depreciation of Furniture and Equipment	69.71	
		Depreciation of Copies of History of C.M.A. still on hand	213.97	
			$32,043.95	
		Less—Recovered from Cancer Fund for Operation of Department of Cancer Control	5,000.00	
				27,043.95
		Code of Ethics—Mailing French Version		96.20
		Adjustment on Account of 1937 Annual Meeting		300.00
		MEDICAL ECONOMICS:		
		Honorarium—Mr. Wolfenden	$1,000.00	
		Less—Sale of Medical Economics Books	15.00	
				985.00
		National Emergency Expenses		388.85
		Medical Secretaries' Conference—Travelling		271.92
		Excess of Revenue over Expenditure for the Year —transferred to Surplus Account		3,886.63
	$75,391.49			$75,391.49

116. STATEMENT No. 3

ANNUAL MEETING IN WINNIPEG, JUNE, 1941, STATEMENT OF REVENUE AND EXPENDITURE

REVENUE		EXPENDITURE		
Commercial Exhibits	$7,400.00	Expenses *re* Scientific and Commercial Exhibits	$1,128.70	
Bank Interest and Premium on U.S. Funds	68.42	Travelling Expenses	639.25	
		Salaries—General Secretary's Office	1,515.00	
		Printing:		
		Business Transactions: Annual Meeting $311.63		
		General 900.68		
			1,212.31	
		Registration Expenses	278.48	
		Auditors' Fee	10.00	
		Expenses of Golf Tournament	122.85	
		General Expenses	1,058.55	
		Clerical Assistance	552.65	
				6,517.79
		Excess of Revenue over Expenditure		950.63
	$7,468.42			$7,468.42

117. SCHEDULE No. 1

SCHEDULE OF INVESTMENTS AS AT 31ST DECEMBER, 1941

GENERAL FUND

	Par Value	*Book Value*
Dominion of Canada 5/43	$ 100.00	$ 98.25
Dominion of Canada 3½/49	5,000.00	4,825.00
Dominion of Canada 3/51	17,000.00	17,015.00
Dominion of Canada 3/52	10,000.00	9,875.00
Dominion of Canada 3¼/52	10,000.00	10,000.00
Dominion of Canada 3/55	1,000.00	985.00
Province of Alberta 4½/42	5,000.00	4,812.50
Province of British Columbia 4/57	5,000.00	4,775.00
Province of New Brunswick 3¼/49	5,000.00	4,862.50
Province of Nova Scotia 3/52	10,000.00	9,900.00
Province of Ontario 3/49	1,000.00	995.00
Province of Ontario 3/50	9,000.00	8,982.47
Province of Saskatchewan 4/54	1,000.00	900.00
Province of Saskatchewan 4½/60	3,000.00	2,835.00
City of Montreal 6/44	500.00	542.50
City of Montreal 4½/46	1,000.00	975.00
City of Montreal 4½/47	2,000.00	1,856.20
City of Montreal 5/54	5,000.00	5,050.00
Jewish Hospital Campaign Committee Inc., of Montreal 5/46	5,000.00	4,950.00
Ritz-Carlton Hotel Co. 1st Mortgage 5/42	1,000.00	1,000.00
	$96,600.00	$95,234.42

Approximate Market Value, $91,869.50.

118. TRUST FUNDS

Lister Club Fund:

Province of Quebec 4½/63	$1,000.00	$ 985.00
City of Winnipeg 5/43	4,000.00	4,021.20
	$5,000.00	$5,006.20

Approximate Market Value, $5,155.00.

Osler Memorial Fund:

Dominion of Canada 3½/49	$ 100.00	$ 96.50
Dominion of Canada 3/51	100.00	100.25
Dominion of Canada 3/55	2,000.00	1,970.00
Province of Alberta 4½/42	3,000.00	2,887.50
Pacific Great Eastern Railway 4½/42	500.00	497.65
	$5,700.00	$5,551.90

Approximate Market Value, $4,484.62.

Osler Scholarship Fund:

Dominion of Canada 3/51	$5,000.00	$5,000.00
Dominion of Canada 3/58	2,000.00	1,992.49
City of Montreal 5/43	5,000.00	5,187.50
	$12,000.00	$12,179.99

Approximate Market Value, $11,578.75.

Blackader Lecture Fund:

Dominion of Canada 4½/46	$ 200.00	$ 195.00
Dominion of Canada 4½/57	200.00	204.00
Dominion of Canada 3/58	3,000.00	2,988.73
Province of Alberta 4½/56	1,000.00	1,000.30
City of Drummondville 4/56	500.00	517.50
City of Drummondville 4/62	100.00	103.50
	$5,000.00	$5,009.03

Approximate Market Value, $4,605.75.

NOTE.—The Association is holding the following Uncashed Coupons on Province of Alberta Bonds:—

General Fund	$1,237.50
Osler Memorial Fund	742.50
Blackader Lecture Fund	247.50

119. SCHEDULE No. 2

SCHEDULE OF TRUSTS AND TRUST FUNDS AS AT 31ST DECEMBER, 1941

			Trust Funds	*Trusts*
Lister Club Fund:				
Capital		$5,042.36		
Accumulated Revenue, 1st January, 1941	$1,396.85			
Revenue for Year	251.43			
		1,648.28		
				$ 6,690.64
Represented by—				
Investments as per Schedule No. 1		$5,006.20		
Cash in Bank		1,684.44		
			$ 6,690.64	
Osler Memorial Fund:				
Capital		$5,564.16		
Deficit, 1st January, 1941	*$ 3.39*			
Revenue for year	79.54			
		76.15		
				5,640.31
Represented by—				
Investments as per Schedule No. 1		$5,551.90		
Cash in Bank		88.41		
			5,640.31	
Osler Scholarship Fund:				
Capital, 1st January, 1941	$12,474.90			
Deduct—Loss on Sale of Securities	26.22			
		$12,448.68		
Accumulated Revenue, 1st January, 1941	$1,517.50			
Revenue for Year	613.57			
		2,131.07		
				14,579.75
Represented by—				
Investments as per Schedule No. 1		$12,179.99		
Cash in Bank		2,375.97		
Capital Balance on Deposit		23.79		
			14,579.75	
Blackader Lecture Fund:				
Capital, 1st January, 1941	$5,000.00			
Add—Profit on Sale of Securities	24.38			
		$5,024.38		
Accumulated Revenue, 1st January, 1941	$574.52			
Revenue for Year	217.74			
		792.26		
				5,816.64
Represented by—				
Investments as per Schedule No. 1		$5,009.03		
Cash in Bank		741.96		
Capital Balance on Deposit		65.65		
			5,816.64	
Blackader Library of the Hospital Service Department:				
Balance, 1st January, 1941		$1,206.52		
Bank Interest		5.55		
		$1,212.07		
Deduct—Expenses:				
Books and Literature	$84.89			
Filing Boxes	86.83			
		171.72		
				1,040.35
Represented by—				
Cash in Bank		$1,047.45		
Less—Account Payable		7.10		
			1,040.35	
Canadian Radiological Society Library Fund:				
Balance, 1st January, 1941		$257.18		
Bank Interest		1.18		
		$258.36		
Deduct—Expenditure for Books		23.26		
				235.10
Represented by—				
Cash in Bank			235.10	
			$34,002.79	$34,002.79

120. SCHEDULE No. 3

SCHEDULE OF SPECIAL GRANTS AND SPECIAL GRANT FUNDS AS AT 31ST DECEMBER, 1941

			Special Grant Funds	*Special Grants*
Department of Hospital Service:				
Balance at Credit, 1st January, 1941		$ 726.90		
Grant from Sun Life Assurance Company of Canada		11,000.00		
Bank Interest		4.35		
		$11,731.25		
Deduct—Salaries (including expense allowance)	$9,008.79			
Travelling Expenses	1,000.11			
Printing, Stationery, Literature and Office Supplies	719.69			
Postage	237.14			
Telephone and Telegrams	29.18			
General Expenses	31.77			
Unemployment Insurance	6.34			
Depreciation of Equipment	66.00			
		11,099.02		
Balance at Credit, 31st December, 1941				$ 632.23
Represented by—				
Cash in Bank	$210.14			
Accounts Receivable	25.00			
	$235.14			
Less—Accounts Payable	196.94			
		$ 38.20		
Equipment—*Less* Depreciation		594.03		
			$ 632.23	
(Revenue, $11,004.35; Expenditure, $11,099.02; Excess Expenditure for Year, $94.67.)				
Department of Publicity and Health Education:				
Balance at Credit, 1st January, 1941		$4,191.13		
Bank Interest		13.72		
Royalties on "What You Should Know" Series		.28		
		$4,205.13		
Deduct—Booklets on Medical Economics	$1,340.17			
Travelling Expense	119.61			
Depreciation of Equipment	30.24			
		1,490.02		
Balance at Credit, 31st December, 1941				2,715.11
Represented by—				
Cash in Bank		$2,442.98		
Equipment—*Less* Depreciation		272.13		
			2,715.11	
Post Graduate Department:				
Balance at Credit, 1st January, 1941		$285.44		
Deduct—Depreciation of Equipment		142.72		
Balance at Credit, 31st December, 1941				142.72
Represented by—				
Equipment—*Less* Depreciation			142.72	
Cancer Fund				
Balance at Credit, 1st January, 1941		$ 7,460.95		
Grant from Board of Trustees of King George V Jubilee Cancer Fund for Canada		14,000.00		
Bank Interest		101.68		
		$21,562.63		
Deduct—Canadian Society for Control of Cancer	$7,000.00			
Canadian Medical Association for Operation of Department of Cancer Control	5,000.00			
Stationery and Printing	71.28			
		12,071.28		
Balance at Credit, 31st December, 1941				9,491.35
Represented by—				
Cash in Bank		$9,103.35		
Accounts Receivable		388.00		
			9,491.35	
(Revenue, $14,101.68; Expenditure, $12,071.28; Excess Revenue for Year, $2,030.40.)				

SCHEDULE No. 3—*Continued*

Committee on Nutrition:			
Balance at Credit, 1st January, 1941	$35.43		
Bank Interest	.49		
Sale of Nutrition Books	5.60		
Balance at Credit, 31st December, 1941			$41.52
Represented by—			
Cash in Bank	$35.92		
Account Receivable	5.60		
		$41.52	
Radio Broadcasting Account:			
Balance at Credit, 1st January, 1941	$1,029.51		
Bank Interest	15.46		
Balance at Credit, 31st December, 1941			1,044.97
Represented by—			
Cash in Bank		1,044.97	
		$14,067.90	$14,067.90

STATEMENT No. 1

121. CANCER FUND

BALANCE SHEET AS AT 31ST DECEMBER, 1941

ASSETS		LIABILITIES		
Cash in Bank	$9,103.35	SURPLUS ACCOUNT:		
Accounts Receivable	388.00	Balance at Credit—1st January, 1941	$7,460.95	
		Add—Excess Revenue for Year	2,030.40	
				$9,491.35
	$9,491.35			$9,491.35

AUDITORS' REPORT

We have audited the books and accounts of the Cancer Fund of the Canadian Medical Association for the year ended 31st December, 1941, and have obtained all the information and explanations which we have required.

We report, that, in our opinion, the above Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the Fund's affairs, as at 31st December, 1941, according to the best of our information and the explanations given to us and as shown by the books.

(Signed) McDONALD, CURRIE & Co.,

Montreal, 3rd February, 1942. *Chartered Accountants.*

STATEMENT No. 2

STATEMENT OF REVENUE AND EXPENDITURE FOR YEAR ENDED 31ST DECEMBER, 1941

REVENUE		EXPENDITURE		
Grant from Board of Trustees of King George V Jubilee Cancer Fund for Canada	$14,000.00	Canadian Society for Control of Cancer	$7,000.00	
Bank Interest	101.68	Canadian Medical Association for Operation of Department of Cancer Control	5,000.00	
		Stationery, Printing and Literature	71.28	
				$12,071.28
		Excess of Revenue over Expenditure for the Year —transferred to Surplus Account		2,030.40
	$14,101.68			$14,101.68

STATEMENT No. 3

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS FOR YEAR ENDED 31ST DECEMBER, 1941

RECEIPTS			DISBURSEMENTS		
Balance of Cash in Bank, 1st January, 1941		$ 4,403.17	Account Payable for 1940	$3,000.00	
Account Receivable for 1940	$ 6,057.78		Canadian Society for Control of Cancer	7,000.00	
Grant from Board of Trustees of King George V Jubilee Cancer Fund for Canada	14,000.00		Canadian Medical Association for Operation of Department of Cancer Control	5,000.00	
Bank Interest	101.68		Stationery, Printing and Literature	71.28	
Total Receipts		20,159.46	Travelling Expenses—to be recovered	388.00	
			Total Disbursements		$15,459.28
		$24,562.63	Balance of Cash in Bank, 31st December, 1941		$9,103.35

STATEMENT No. 1

122. DEPARTMENT OF HOSPITAL SERVICE
BALANCE SHEET AS AT 31ST DECEMBER, 1941

ASSETS			LIABILITIES		
Cash in Bank		$210.14	Accounts Payable		$196.94
Accounts Receivable		25.00	SURPLUS:		
EQUIPMENT:			Balance at Credit, 1st January, 1941	$726.90	
Balance, 1st January, 1941	$617.08		*Deduct*—Excess of Expenditure over Revenue for the Year	94.67	
Additions during year	42.95				632.23
	$660.03				
Deduct—Depreciation for Year	66.00				
		594.03			
		$829.17			$829.17

AUDITORS' REPORT

We have audited the books and accounts of the Department of Hospital Service of the Canadian Medical Association for the year ended 31st December, 1941, and have obtained all the information and explanations which we have required.

We report that, in our opinion, the above Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the Department's affairs. as at 31st December, 1941, according to the best of our information and the explanations given to us and as shown by the books.

(Signed) McDONALD, CURRIE & Co.,
Chartered Accountants.

Montreal, 3rd February, 1942.

STATEMENT No. 2

STATEMENT OF REVENUE AND EXPENDITURE FOR YEAR ENDED 31ST DECEMBER, 1941

REVENUE			EXPENDITURE		
Grant—Sun Life Assurance Co. of Canada		$11,000.00	Salaries (including Expense Allowance)		$9,008.79
Bank Interest		4.35	Travelling Expenses		1,000.11
			Stationery, Printing, Literature, etc		240.46
			SPECIAL BOOKLETS:		
			Medical Economics	$165.34	
			Hospital Study Committee	150.00	
			Hospitals Approved for Internship	59.13	
			Health Insurance	82.08	
				$456.55	
			Reprints—Medical Economics	22.68	
					479.23
			Postage		237.14
			Telephone and Telegrams		29.18
			General Expenses		31.77
			Unemployment Insurance		6.34
			Depreciation of Equipment		66.00
					$11,099.02
			Excess of Expenditure over Revenue for the Year—transferred to Surplus Account		*94.67*
		$11,004.35			$11,004.35

STATEMENT No. 3

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS FOR YEAR ENDED 31ST DECEMBER, 1941

RECEIPTS			DISBURSEMENTS		
Balance of Cash in Bank, 1st January, 1941		$ 235.66	Repayment of Loan from Canadian Medical Association Current Account		$4,000.00
Grant—Sun Life Assurance Co. of Canada	$11,000.00		Account Payable for 1940		125.84
Loan from Canadian Medical Association Current Account	4,000.00		Purchase of Office Equipment		42.95
Bank Interest	4.35		Salaries (including Expense Allowance)		9,008.79
Total Receipts		15,004 35	Travelling Expenses (Recoverable $25.00)		1,025.11
			Stationery, Printing, Literature, etc		215.38
			SPECIAL BOOKLETS:		
			Medical Economics	$165.34	
			Hospitals Approved for Internship	59.13	
			Health Insurance	82.08	
				$306.55	
			Reprints—Medical Economics	22.68	
					329.23
			Postage		220.90
			Telephone and Telegrams		29.18
			General Expenses		26.15
			Unemployment Insurance		6.34
			Total Disbursements		$15,029.87
			Balance of Cash in Bank, 31st December, 1941		210.14
		$15,240.01			$15,240.01

Approved.

REPORT OF THE COMMITTEE APPOINTED TO COLLECT MEDICAL AND SURGICAL EQUIPMENT FOR BRITAIN

Mr. Chairman and Members of General Council:—

123. In September, 1941, the Commissioner of the Canadian Red Cross Society requested the Canadian Medical Association to undertake a campaign throughout Canada to collect and send medical and surgical supplies to Britain. The General Secretary of the Canadian Medical Association asked the Academy of Medicine, Toronto, to form a committee which would organize this campaign. At a special meeting of the Academy, called by the President, Dr. Charles Copp, the following committee was appointed: Dr. Edward A. McCulloch, Dr. S. J. N. Magwood, Dr. A. I. Willinsky, Dr. Jas. Evans, Dr. W. J. Corrigan, Dr. Ernest McCulloch.

124. This Committee, working on behalf of the Canadian Medical Association and the Canadian Red Cross Society appealed to all the doctors in Canada by personal letter, on October 24th, 1941. The response to this appeal has been most gratifying. Doctors and hospitals from all parts of the Dominion have responded liberally and promptly. Groups of doctors in various cities and communities have clubbed together and sent large contributions. It would be difficult to find a community in all Canada which has not shared generously in this appeal. The Committee has examined every piece of equipment and classified and packed it in cartons for overseas shipment. The Committee has had the whole-hearted cooperation of the graduate nurses of the central registry in Toronto, much of the manual work being done by these capable hands. The various instrument houses in Toronto have also helped most generously. Through them scores of pieces of valuable equipment were reconditioned and much good advice received.

125. In all we have packed 204 cartons, containing at least 20,000 individual pieces. The value of these instruments ranges from 50 cents for used forceps to $200.00 for modern microscopes of which three were included. Much of the equipment was new and, as far as possible, imperfect pieces were made useful.

126. The Canadian Medical Association and the Canadian Red Cross Society have every reason to be proud and gratified at the response from the Doctors of Canada to this appeal for medical equipment for Britain.

All of which is respectfully submitted.

EDWARD A. McCULLOCH,
Chairman.

Approved.

REPORT OF THE CENTRAL PROGRAMME COMMITTEE

Mr. Chairman and Members of General Council:—

127. The Scientific Programme for the Annual Meeting has been arranged according to the general plan followed in the past two years. General Sessions will be held each morning with Sectional Meetings each afternoon for the three days of the meeting. Round Table Conferences will be conducted each morning in the hour preceding the General Session. During the meeting, eight Sections will hold one or more Round Table Conferences. In addition, a Round Table Conference for all Sections on "The Use and Abuse of Vitamins" will be held on Thursday morning.

128. The Programme provides for the presentation of eleven papers in General Sessions and eighty-five papers in meetings of Sections. The subjects selected for discussion cover all branches of medicine, with special emphasis on medical problems related to the war. Dr. C. D. Parfitt will deliver the Osler Lecture which, on account of illness, he was unable to deliver at the last Annual Meeting. In other years it has been our privilege to have three Guest Speakers from the United States address meetings of General Session. This year the war has prevented two of the invited guests from attending but your Committee is pleased to announce as Guest

Speaker Dr. Paul O'Leary, Chief of the Department of Dermatology and Syphilology of the Mayo Clinic.

129. In conclusion, your Committee wishes to acknowledge the generous help and co-operation given in the preparation of the Scientific Programme by the Local Programme Committee under the Chairmanship of Dr. Harold Orr, and to thank the many members of the Association who are contributing to the success of the Meeting by reading papers or by conducting Round Table Conferences.

All of which is respectfully submitted.

DUNCAN GRAHAM,
Chairman.

Approved.

REPORT OF THE COMMITTEE ON NUTRITION

Mr. Chairman and Members of General Council:—

130. Approximately 2½ million copies of the booklet "Food for Health in Peace and War" have now been printed both in English and in French and practically all distributed.

131. The trailer at the end of the Nutrition moving picture, "The Proof of the Pudding", made available in Canada by the Metropolitan Life Insurance Company, has been shown between September, 1941, and April, 1942, to audiences totalling 464,000 people. By the end of September, 1942, it is estimated that this trailer will be seen by more than a million people. The trailer reads as follows:—

> "Shortly after the outbreak of war, the Canadian Medical Association and the Life Insurance Companies in Canada organized a Joint Committee to promote health through nutrition and enlisted the co-operation of the Canadian Red Cross. Millions of booklets telling people what to eat to be healthy and how to get the best food values at low cost have already been distributed. If you want a booklet, write to your Provincial Health Department for information. Remember—individual fitness is important to our national war effort."

132. A third edition of the booklet, "What to Eat to be Healthy" has been prepared and 125,000 copies printed.

All of which is respectfully submitted.

F. F. TISDALL,
Chairman.

Approved.

REPORT OF THE EDITOR

Mr. Chairman and Members of General Council:—

133. In view of the War we had feared that there would be a shortage of papers presented for publication. This fear has proved groundless up to date, and we note, too, that the contents of the *Journal* have maintained a high standard of quality. Naturally, a considerable proportion of the items deal with the War and related topics. The *Journal* has been maintained at the same size as last year; 228 papers have been accepted and 31 returned. About 20 per cent of our papers are concerned with the war, directly or indirectly.

134. Some of the papers embody research of a high order and some definite and important additions to our knowledge have been recorded in our *Journal* for the first time. The most noteworthy of these have emanated from the research laboratories of Toronto and McGill Universities.

135. News from the various Provinces has been augmented and abstracts from the various journals are now more comprehensive.

136. The expedient of publishing certain items in the French language has been continued and is working satisfactorily. In this category we find abstracts of the most valuable articles, reports of societies, and items of news.

137. The Section on "The War" is being continued and is more informative than ever. A list of important articles in other journals bearing on the War is given each month. It has not been planned to make this list exhaustive, but selection has been made of the contributions of this kind which can easily be consulted. Books are also noted. It is hoped that this idea will prove helpful to Medical Officers.

138. We have renewed arrangements with Dr. Alan Moncreiff of London, a former special correspondent, to furnish us with monthly letters dealing with the present situation in Britain. His letters have been interesting and highly informative.

139. An innovation that promises well is the institution of "The General Secretary's Page". This is intended to provide our members with a "bird's eye view" of the Association's activities at short intervals during the year, and should stimulate interest in our affairs.

140. A few contributions may be cited as being of more than ordinary importance—"Shock", by Paul G. Weil; "A new method of elongating short palates", H. Baxter; "Massive arsenotherapy in early syphilis by the continuous intravenous drip method", B. Usher and E. Hill; "The effect of the synthetic hæmorrhagic agent, 4—Hydroxycoumarin, in prolonging coagulation and prothrombin time", S. R. Townsend and E. S. Mills; "Community doctor service", W. S. Caldwell; "The electrocardiographic records of 2,000 R.C.A.F. Air Crew", C. E. Hall, C. B. Stewart, and G. H. Manning; "Treatment, pathology and prevention of mental disorders in the aged", G. E. Reed and K. Stern; "Pinworm infection", M. J. Miller and D. Allen; "The intracranial use of sulfadiazine", E. F. Hurteau; "The progress of the Medical Service since the advent of the war", R. M. Gorssline; "The special problem of the R.C.A.F. Medical Officer", G. E. Hall; "Problems of Army hygiene", M. R. Elliott; "Post war problems", A. F. Menzies; "A new immunization program in the R.C.A.F.", A. H. Sellers; "Pension problems", H. H. Hepburn; "Wheat vitamins in flour and bread", F. F. Tisdall *et al.;* "Experiences with stored blood and 'the blood bank' ", G. Shanks.

141. The following Editorials will also serve to indicate the field covered by our *Journal*—"Health insurance legislation"; "Shortage of hospital beds"; "Wartime surgery"; "The need for medical officers by the Defence Service"; "Bombs and bombing as health agents"; "Training and experience"; "The efficiency of industrial workers"; "The Manitoba epidemics"; "Industry, medicine, and war"; "Economy in the use of drugs in wartime"; "Blood transfusion".

142. Lists of Medical Officers working in the Army and R.C.A.F. have been published as supplements.

143. Books received numbered 223; of these 146 were reviewed; the balance were merely listed. The following were by Canadians—"The Practice of Medicine", 2nd edition, J. C. Meakins; "Maude Abbott, a Memoir", H. E. MacDermot.

144. The Editor's personal thanks are hereby tendered for valuable aid received, to Dr. H. E. MacDermot, the Assistant Editor; the Editorial Board; the Office Staff; to Dr. Gerald Horner, Editor of the *British Medical Journal;* to Dr. Egbert C. Morland, Editor of *The Lancet;* to Dr. Robt. T. Noble, of the College of Physicians and Surgeons of Ontario; to Drs. T. C. Routley and Harvey Agnew; and to the Murray Printing Company whose cordial and efficient assistance has done much to produce an attractive *Journal.*

All of which is respectfully submitted.

A. G. NICHOLLS,
Editor.

Approved.

REPORT OF THE COMMITTEE ON MEDICAL EDUCATION

Mr. Chairman and Members of General Council:—

145. During the past year, war conditions have affected medical education in several ways. The need of additional medical officers in the armed forces is still with us. To a lesser extent there is increased need of additional medical officers in industries, particularly in those industrial plants having rapidly expanded due to war demands, these medical officers to help maintain the health of the employees in their plants. In other words, there has been an expansion in industrial medicine.

146. The course in the medical schools has been accelerated in three schools during 1941-1942 to help meet this situation; and, during 1942-1943, and probably for the duration, it is more than likely that all the schools in Canada will be operating on an accelerated program. To do this without lowering standards has been to eliminate most of the long summer vacation, though the nature of this acceleration will vary in each school in line with the individual school's pattern of instruction. The growth of education in this country has been in varying degree in different sections of the Dominion. The result has been that educational procedure in the different universities in this country shows a multiplicity of variation. This has in a measure been reflected in the medical schools. Whether the time will come that medical education in Canada will be more standardized than it is at present is a matter of conjecture; and whether this is desirable is open to debate. At present we perhaps could do with a little more uniformity but not at the price of the loss of individual initiative.

147. The above-mentioned conditions have created problems both for staffs and students. The staffs of many of the schools have been depleted by enlistments. The burden of carrying the accelerated courses has fallen on what staff is left in the schools. In addition many of their remaining staff members are carrying on research on war problems such as chemical warfare, aviation medicine, newer methods in treating injuries due to high explosives and incendiaries, etc.

148. A considerable percentage of the students with summer earnings curtailed find financial difficulties. After continuous representations to the Dominion Government ever since the acceleration was first suggested, it now seems that financial aid to these students is to be forthcoming.

149. If the war lasts for a considerable time, organized post-graduate medical education as it is now known, will be suspended for apparently quite a considerable period. This is due to the fact that internships in hospitals are now reduced to eight months and that senior internships and residencies in hospitals are rapidly disappearing. Even at the conclusion of hostilities, the post-graduate energies of the country will in all probability be spent for some time in refresher courses for men released from the services before they return to civilian practice.

All of which is respectfully submitted.

F. J. H. CAMPBELL,

Approved. *Chairman.*

REPORT OF THE DEPARTMENT OF HOSPITAL SERVICE

Mr. Chairman and Members of General Council:—

150. The Department of Hospital Service of the Canadian Medical Association has been quite active since the Council met last in Winnipeg. In addition to the routine undertakings which carry on from year to year, much time has been devoted to problems resulting from the war and the federal regulations appertaining thereto.

HOSPITALS AND THE WAR

151. The hospitals have been seriously affected by the war and have had to face new difficulties. Their staffs have been sadly depleted; medical, nursing and technica personnel have enlisted in large numbers as have orderlies and others. Many have sought higher wages in industry. The loss of skilled supervisors, of residents and of expert technicians has made it difficult to maintain the clinical services at the same high standard.

152. The various controlling regulations of the Wartime Prices and Trade Board, the Department of Labour, the National War Services, the Department of Munitions and Supply and the Minister of Defence have all affected hospitals in some way, with the result that our Department has been required to devote much time to these regulations.

153. Fortunately it has been possible to obtain interpretations recognizing the indispensability of hospital work. Hospitals have been declared an essential industry; the freezing of hospital rates has been rescinded; neither wages nor salaries in hospitals, relatively low, are fixed, the bonus is not obligatory and increases may be paid if desirable; compulsory training of needed personnel may be postponed; hospitals have been given high priority with respect to cotton and metallic articles, rubber, building materials and other scarce commodities; hospitals may profit by subsidized prices even though their rates are not under the ceiling. Without these concessions the hospitals could not carry on. In return the Government has urged that hospital doctors, nurses and others exercise every economy and care to conserve supplies as much as possible.

154. Many inquiries have been received respecting construction. New wings are badly needed and a number of hospitals are building despite the scarcity of materials and labour and the higher costs. The greatest difficulty has been to get equipment or material fabricated even in part in the United States. This is being cleared up.

155. The war may have done a great deal toward changing our conception of what is ideal in construction. There is now a tendency to build less imperishable and cheaper buildings, having in mind the rapid changes in our ideas of hospital care. A good example is the new wing at Nicholls Hospital, Peterborough, which cost less than half the amount per bed usually considered necessary, yet which will give service for twenty years or probably longer.

INTERNSHIPS

156. Intern schedules have been upset owing to the speeding up of the classes in many of the medical schools. However the hospitals have co-operated in every way and most of them now have an eight or nine months' schedule to meet this situation. As many draw interns from various schools, their arrangements are adjusted to suit the individual.

157. There is a shortage of seniors and residents and non-teaching hospitals are reporting an increased shortage of junior interns. It would appear that they and the 90 per cent of hospitals without interns at all are utilizing selected nurses more and more for clinical assistance. With depleted and overworked visiting staffs, the doctors themselves cannot assume these tasks.

158. For some years medical men intending to practise in the United States have taken approved internships here because they were thus given credit for their necessary 12 months internship by the National Board of Medical Examiners. Despite the reduction of the internship to eight months in so many approved hospitals, the National Board of Medical Examiners will continue to recognize such for credit provided the remaining portion of the twelve months' period is completed either by service in the Defence Forces or by acceptable post-graduate work later.

BULLETINS ON ECONOMICS

159. The Department has co-operated with Mr. Wolfenden and with the Committee on Medical Economics to continue the series of small bulletins designed for periodic distribution to interns for group study. These have been translated into French as well and sent out to French speaking interns. Although the Bulletins have been

enthusiastically received by hospital trustees and administrators and by the public, we have no indication that they have been of interest to the interns.

DENTAL CARE IN HOSPITALS

160. In co-operation with the Canadian and American Dental Associations and the American Hospital Association, our Department has assisted in the preparation of a manual on "Dental Care in Hospitals." The nucleus committee was zoned in Toronto and has produced the best study yet made on what has been described as the "forgotten Department."

161. The Report of the Committee on Approval of Schools for Laboratory Technologists, in the work of which the Department of Hospital Service took an active part, appears elsewhere.

All of which is respectfully submitted.

HARVEY AGNEW,
Secretary.

Approved.

REPORT OF THE COMMITTEE ON LABORATORY TECHNOLOGISTS

Mr. Chairman and Members of General Council:—

162. The Committee on Approval of Schools for Laboratory Technologists has received a number of requests from directors of hospital laboratories desiring consideration for approval. Schools for laboratory technologists approved to date are as follows:

Victoria General Hospital, Halifax, N.S.
Ralph Smith, M.D., Provincial Pathologist.
Course: (*a*) General Certificate.
(*b*) Specialty—Bacteriology, Hæmatology, Pathological Chemistry and Histology.
(Instruction at Provincial Laboratory on work for V.S.H. and a group of Halifax and provincial hospitals.)

Saint John General Hospital, Saint John, N.B.
Arnold Branch, M.B., Director of Laboratories.
Course: General Certificate.

Hotel Dieu de Montreal, Montreal, Quebec.
Georges Baril, M.D., Director of Laboratories.
Course: General Certificate.

Hôpital Saint Luc, Montreal, Quebec.
Armand Frappier, M.D., Director of Laboratories.
Course: Specialty—Bacteriology, Serology.

Ottawa Civic Hospital, Ottawa, Ontario.
Max O. Klotz, M.D., Pathologist.
Courses: (*a*) General Certificate.
(*b*) Specialty—Biochemistry and Hæmatology.

Kingston General Hospital, Kingston, Ontario.
James Miller, M.D., Director of Laboratories.
Courses: (*a*) General Certificate.
(*b*) Specialty—Biochemistry, Bacteriology, Histology.

St. Michael's Hospital, Toronto, Ontario.
William Magner, M.D., Director of Laboratories.
Courses: (*a*) General Certificate.
(*b*) Specialty—Bacteriology, Histology, Biochemistry.

Toronto Western Hospital, Toronto, Ontario.
George Shanks, M.D., Director of Laboratories.
Courses: (*a*) General Certificate.
(*b*) Specialty—Bacteriology, Histology.

Hamilton General Hospital, Hamilton, Ontario.
William J. Deadman, M.B., Director of Laboratories.
Course: General Certificate.

Mountain Sanatorium, Hamilton, Ontario.
A. R. Armstrong, M.D., Director of Laboratories.
Course: General Certificate.

163. The applications of several other hospitals for approval of their schools for the training of laboratory technologists are under consideration. It would seem that this development is a desirable one for during the past year there has been an added interest on the part of young men and women in laboratory work as a career. As time goes on the increasing number of hospitals desiring to employ technologists will find this rating of considerable value as a yard-stick of quality in the training of technologists. It is to be hoped that more schools may be established in the western provinces.

All of which is respectfully submitted.

WILLIAM J. DEADMAN,
Chairman.

Approved.

REPORT OF THE COMMITTEE ON INDUSTRIAL MEDICINE

Mr. Chairman and Members of General Council:—

164. The nucleus of the Committee on Industrial Medicine has held a number of meetings during the year and obtained experiences and opinions by correspondence with the other members. Comment should be made upon the interest and efforts of the members of this Committee.

165. In last year's Interim Report to Council the scope of industrial medical work was considered and recommendations were made as follows:

"That in war industry there be established without delay facilities for—
(1) Pre-employment examination of workers.
(2) Medical supervision of conditions of work.
(3) Special examination of those already employed as is necessary for the early diagnosis and control of disease and maintenance of health."

166. As the Committee on Industrial Medicine was a temporary one, its report as adopted by Council was incorporated in the Minutes of the Executive Committee's Report. Since then the Committee has been made a standing Committee of the Association.

167. The recommendations in the Report were submitted to the Honourable Ian Mackenzie, Minister of Pensions and National Health and the Honourable C. D. Howe, Minister of Munitions and Supply. The Minister of Pensions and National Health replied that the subject had been discussed with the officers of that Department and would be taken up with the Ministers of Labour and of Munitions and Supply. By Order-in-Council P.C. 1550, passed March 2nd, 1942, the Minister of Pensions and National Health may require industry engaged in production for war to provide medical, surgical, nursing and preventive services to his satisfaction and to permit physical examination of food handlers.

SCOPE AND METHODS OF WORK IN INDUSTRIAL MEDICINE

168. While the importance of this work is by no means limited to war time and should extend into the post-war period, it is obvious that mechanized warfare places unusually heavy demands upon industry. Economic considerations become secondary to sustained maximum output which is dependent upon the conservation of labour. The medical profession has an obligation to the country to contribute to this end by keeping workers fit for the job through the general practice of medicine assisted by the practices of industrial medicine.

(1) All practising physicians, particularly in industrial communities, should realize that industry has medical problems which affect these groups and the work they are able to accomplish, as well as the individual and his economic condition. They should give increased consideration to the employee's occupation as an influence in the ill-health he presents as a patient and in his early and safe return to work. The services of the physician in industry should be used to assist the family physician in this. All such physicians should be prepared to render guidance to interested employers who wish to establish medical facilities for the control of ill-health.

(2) Industrial medicine is taken in principle to include preventive medicine and hygiene in factories, palliative treatment in sickness occurring in the factory, the recognition and control of occupational diseases, the control of infection in accidents and of accidents themselves.

(3) The practice of preventive medicine and hygiene in industry involves physical examination on employment, which might include x-ray, Wassermann, blood pressure and urinalysis; and periodically during employment as appears necessary; encouraging the reporting of minor complaints of ill-health to assist in early diagnosis of disease and defect; and frequent observation of industrial environment, such as ventilation, lighting, sanitation, hazardous processes and plant cafeterias.

(4) The control of infection in accidents involves the supervision of first aid facilities including personnel for this purpose. The treatment of industrial accidents and of occupational diseases is not necessarily the duty of the industrial physician, but he should maintain the closest contact with the attending physician during treatment.

(5) Records should be kept to provide information on the extent to which plant dispensary facilities are used, the amount and kinds of illness and lost time therefrom and physical examination findings from time to time. The records of these findings should be confidential as between the employee and physician. Where reports of the results of physical examination are required for the employer's guidance, classification into categories according to fitness for work should be used except where the consent of the employee to divulge these findings has been obtained.

These categories are usually:

(*a*) Fit for any kind of work.

(*b*) Fit for specified kinds of work.

(*c*) Rejected.

The workman should usually be acquainted with the findings in his case.

(6) Health education through advice in the light of physical examination findings and more generally through posters, talks, etc., to employees should be carried out.

(7) This work should be in charge of physicians within industry who come regularly in contact with the factory. In larger plants daily contact is necessary. As a minimum, there should be the equivalent of one full-time physician with nursing and clerical assistance for each twenty-five hundred workers. In industries with special hazards involving sickness or accidents or high labour turnover this personnel should be increased.

(8) The same professional ethics should obtain in the practice of industrial medicine as in the practice of medicine generally.

(9) The industrial physician should maintain contact with the family physician of the employee, with his local Medical Society and with community health agencies, particularly Divisions of Industrial Hygiene. He should assist the family physician in the rehabilitation of convalescent workers through his knowledge of disability and of job requirement.

(10) The physician employed by industry for the supervision of general health is preferably made directly responsible to management and engaged on a retainer basis rather than on a fee basis because he thereby accepts responsibility for advising on such medical problems as arise, and for the maintenance of general health.

(11) It is recommended:

(1) that this statement of conditions governing the activities in industrial medicine be made available to physicians generally;

(2) that instead of sections on Industrial Medicine in the Canadian Medical Association and in its various Divisions arrangements be made whereby at all suitable sessions of their meetings, at least one paper be presented discussing some aspect of the control of disability among wage-earners;

(3) that the Canadian Medical Association request the formation of a committee of the National Research Council for the investigation of such problems as are practical from among those submitted to it on this subject, *e.g.*, industrial fatigue or certain occupational diseases occasioned by war production.

All of which is respectfully submitted.

J. G. CUNNINGHAM,
Chairman.

Approved.

REPORT OF THE MEYERS MEMORIAL COMMITTEE

Mr. Chairman and Members of General Council:—

169. The late Dr. D. Campbell Meyers died in the year 1927. By his Will, he left an honorarium to be known as the Meyers Memorial, to be given to "Such member or guest of the Canadian or Provincial Medical Associations as shall write and read at the annual meeting of any of the said associations the best thesis or dissertation on the study and treatment of those functional neuroses which, if not treated or not treated sufficiently early, might probably terminate in insanity, in the hope that the further study of those neuroses will lead to the formation of specially equipped wards in general hospitals, devoted to their interest and early treatment, and more especially in those hospitals where teaching to the medical student as well as the nurse is given, such thesis to be submitted to and adjudged by the above Committee."

170. This Committee has been in existence for fifteen years and at one time, was under the chairmanship of the late Dr. J. T. Fotheringham. We would like to express regret that so few papers have been presented to the Committee for competition in this honorarium, and would also like to point out that it was the expressed wish of Dr. Meyers to have competitive papers submitted from any, or all, of the branches of medicine as neuroses expressed themselves to the different specialties, and even more particularly to encourage and promote observation and study and competitive papers from the general practitioner of Canada. In very few years has there been more than one paper presented to the Committee and, in many years, none at all.

171. Last year the Meyers Memorial prize was awarded to Dr. Trevor Owen of Toronto for his paper on "Fatigue, Rest and Exercise".

All of which is respectfully submitted.

GEORGE. F. BOYER,
Chairman.

Approved.

REPORT OF THE COMMITTEE ON MATERNAL WELFARE

Mr. Chairman and Members of General Council:—

I beg to submit the following report for the Maternal Welfare Committee for the year 1941-42.

172. The maternal death rate for the Dominion in 1941 is not yet available. However, for the first nine months of the year the rate was 3.4 per thousand live births. In four of the nine provinces the rate was less than 3.0 per thousand live births. This rate indicates progress—slow, but if maintained, well worth while. This progress may be emphasized by quoting from this Committee's report of ten years ago. "For the first time a significant reduction in maternal mortality occurred in the year 1931. While in 1930 the mortality rate was 5.8 per thousand living births, in 1931 this rate was reduced to 5.1 per thousand."

173. Information received during the Manitoba Pregnancy Survey is now being compiled.

174. In the near future your Committee hopes to place before you what it considers a suitable "minimum of prenatal care". This minimum should constitute a guide to the profession and governing bodies as to the care every expectant mother has a right to expect.

All of which is respectfully submitted.

J. D. McQUEEN,
Chairman.

Approved.

REPORT OF THE COMMITTEE ON PHARMACY

Mr. Chairman and Members of the General Council:—

175. This Committee brought before the Council at its meeting last year certain resolutions which were intended to strengthen the Canadian Committee on Pharmaceutical Standards, which since 1927 has acted as a medium by which advice was given to the Pharmacopœia Commission in Great Britain in regard to changes suggested in the Pharmacopœia and which has also drawn up certain Addenda to the B.P. for application in Canada which have been recognized, though perhaps not fully officially by the Department of Health. The resolutions suggested that the Government of Canada should appoint such a Committee and that if the Government undertakes to do so, the Canadian Medical Association be empowered to nominate to the Government a panel of persons from which the Government will appoint to such an official Committee at least one-third of the Committee's personnel.

176. These resolutions were approved by Council and transmitted to the Executive for action. The Executive appointed Dr. Sclater Lewis, Dr. A. B. Whytock and myself to bring the matter before the Deputy Minister and members of his Department. This was done while the Executive was meeting in Ottawa October 23rd. The Canadian Pharmaceutical Association were also represented at this meeting. The suggestions made by the Committee seemed to be favourably received and in due course the Secretary of the Association received a letter from the Deputy Minister which suggested that they were going to give favourable consideration to the matter. In January the Chairman was sent a copy of the proposed draft of an Order-in-Council, which does not need to be quoted in full, but the Department had evidently agreed to our recommendations.

177. In March there was a slight change made, namely, that the representation of the Canadian Pharmaceutical Manufacturers' Association should be increased to two. On Tuesday, 28th April, I appeared by invitation with the President of the Canadian Pharmaceutical Association and the President of the Canadian Pharmaceutical Manufacturers' Association in Ottawa to meet with the Deputy Minister and his colleagues, at which time a draft was put before us which was materially different from the previous drafts. The draft is at the present moment under consideration by the Committee on Pharmacy and in its present form is not considered satisfactory, but negotiations are in progress which we hope will result in the Department reconsidering its position and which will bring the matter to a suitable conclusion. This is therefore to be considered as an interim report.

All of which is respectfully submitted.

V. E. HENDERSON,
Chairman.

Approved.

The following resolution was presented from the British Columbia Division:

"WHEREAS the Executive Committee of the British Columbia Medical Association, Canadian Medical Association British Columbia Division, recognizes the value of the work done by the Department of Pensions and National Health in the control of narcotics and its effort to husband our limited supplies of these essential drugs;

AND WHEREAS it has been brought to our attention by the Vancouver Medical Association that there is at present a determined effort to enforce the strict letter of the regulations by which the pharmacist must have in his hands a written prescription before dispensing a compound containing even a small amount of codeine;

AND WHEREAS with the present shortage of civilian doctors due to the war, real hardships, both to the patient and to the doctor may result;

THEREFORE BE IT RESOLVED that this whole matter be considered by Council of the Canadian Medical Association with the hope that some effort be made to temporarily relax the strict enforcement of these regulations."

After discussing this question, it was agreed that it be passed to the Committee on Pharmacy for study and report to the next meeting of the Executive Committee.

It was also recommended that the Committee on Pharmacy be asked to consider ways and means of educating the medical profession of Canada to possible methods of reducing the use of remedies containing narcotics.

REPORT OF THE COMMITTEE ON PUBLIC HEALTH

Mr. Chairman and Members of General Council:—

The Committee on Public Health begs to submit the following report.

178. Your Committee urges that under the serious war emergency now existing it is a matter of vital importance that preventive health services in Canada, whether municipal, provincial or federal, be maintained at a high level of efficiency with no curtailment of any essential health service which is on a sound scientific basis and efficiently carried out. This is essential in maintaining the physical and mental fitness of the civilian population and His Majesty's Forces.

179. Your Committee again wishes to record its satisfaction on the co-operation which has been extended by the various provincial health authorities as well as many municipal authorities to the federal authorities in connection with the national war effort. The fullest ad-

vantage should be taken of all existing public health resources in Canada in the war emergency.

180. This paragraph was referred to the Executive Committee for further consideration.

181. Your Committee again recommends that housing be given the consideration which the urgency of this great problem demands. A national policy on housing should be instituted now if we are to be in a position to deal adequately and effectively with the serious housing problem in Canada which will be accentuated after the war.

182. Your Committee considers that more rigid control should be exercised over the advertising of patent medicines over the radio and through the press.

183. Your Committee recommends as a war time activity that a special effort be made in each province to secure the correction of defects of high school students. In a recent survey of certain representative high schools in the Province of Manitoba with a view to determining from an all-out war effort what the health needs were and how they could best be provided, a complete physical examination including a mouth examination by a qualified dentist, was made of every student 14 years and older. The results of these examinations indicated:

1. Four per cent have permanent incapacitating defects.
2. Practically 100 per cent had dental defects (mostly minor).
3. Sixty-four per cent had one or more physical defects, exclusive of dental defects, and one-half of these were said to be such as to bar these individuals from certain types of gainful occupation such as war industries.
4. Thirty-five per cent of the group examined had defective vision with only 20 per cent corrected by proper glasses.
5. Twenty-seven per cent were suffering from sub-nutrition.
6. Sixty per cent of the defects found could be corrected.

184. Your Committee is indebted to Dr. F. W. Jackson, Deputy Minister of Health of Manitoba, a member of the Committee, who was good enough to make the results of this study available. Dr. Jackson points out that the above mentioned statistics indicate that 64 per cent of the high school population is physically unfit to take its place properly in civilian activities or to enter His Majesty's Forces, but with a well organized medical program for this group, 60 per cent could be made fit for either our armed forces or made fully efficient for our war time production program. Undoubtedly surveys in the other provinces of Canada would reveal a similar situation.

185. Your Committee wishes to urge a Dominion-wide program looking to physical and dental examinations of our children in both public and high schools with definite provision made for the correction of defects found, and recommends that this matter be brought to the attention of Federal, Provincial and Municipal Health authorities, all provincial branches of the Canadian Medical Association, or Provincial Medical Associations and the Canadian Dental Association. In the opinion of the Committee, no more effective contribution could be made to the maintenance of a high morale, and to the effective prosecution of the war.

186. Your Committee again reports that in its opinion the instruction provided in public health, including psychiatry, in the medical schools and schools of nursing in Canada, is in many cases inadequate. The time available for field work in public health and for practical instruction in the wards of mental hospitals and in mental hygiene clinics is in many cases insufficient to give students any real understanding of what is fundamental in the field of public health. Your Committee is of the opinion that public health should be included in the curriculum of all university faculties.

All of which is respectfully submitted.

M. R. BOW,
Chairman.

Approved (as amended).

REPORT OF THE COMMITTEE ON ECONOMICS

Mr. Chairman and Members of General Council:—

For the year that has just passed the Committee on Economics has little to report to General Council.

Bulletins for Interns

187. Under the titles, "The Development of Health Insurance in Canada", "The Municipal Doctor" and "The British Experience with Health Insurance", bulletins IV, V and VI of the Economic Series for Interns were prepared by Mr. Hugh Wolfenden and, through the good auspices of Dr. Harvey Agnew and the Department of Hospital Service, distributed to interns across Canada.

188. While Mr. Wolfenden is ready to proceed with the preparation of further bulletins, it has been decided to await a more favourable time for the continuation of this work. Many hospitals are now under-staffed as far as interns are concerned and, these men, busy with their hospital duties, find little time for the study of Medical Economics. The situation will be reviewed in the Autumn.

The Teaching of Medical Economics and Social Medicine to Medical Students

189. The Committee on Economics desires to again bring to the attention of Council the question of the teaching of Medical Economics and Social Medicine to Medical Students. During the past year, through the co-operation of the deans, your Committee obtained information as to how this problem is being tackled in most of the Medical Schools of Canada. From the information supplied it was quite apparent that in many of the schools the information available and the study called for are inadequate to properly equip the graduate who will go forth to practise post-war Medicine. Only one school appears to be attempting to cope in a purposeful way with all the aspects of this problem and only one school appears to have a realistic vision of the future—"Had the war not disrupted our plans we were prepared to initiate this year an entirely new Department of Preventive and Social Medicine. This was to include all

aspects of the public relations of Medicine. The plans are complete and will be implemented just as soon as possible. The key man who had already been away for a year preparing, joined the Air Force." "The plans are complete and will be implemented just as soon as possible." Your Committee sincerely hopes that every other Medical School in Canada will be in a position to make a similar statement before the war is over.

190. No one will deny that in the years before this war profound changes occurred in the social pattern as it related to the practice of Medicine. No one can deny that, while these changes continue during the war, their tempo will be greatly accelerated in the years that follow the Peace. There is no such thing as a fixed social pattern and we should advance to meet inevitable and continuing change.

191. Last September the Medical Council of Canada appointed a committee to study and report on the question of Medical Economics and Social Medicine as related to undergraduates. What is the Canadian Medical Association doing? Has it any responsibility in this matter?

192. Your Committee on Economics believes that the Canadian Medical Association, through its Divisions, is in intimate contact with the urban and rural practice of Medicine throughout Canada and has a degree of knowledge of the increasing complexity of life for the rank and file of the profession that is not attained by Medical Schools whose work and environment must, naturally, limit their horizon as far as keeping in close touch with their graduates is concerned.

193. Where the welfare of the graduate is concerned there are certain circumstances in which we have the right to proffer advice and there are certain circumstances in which the schools have the right to expect advice. It will not be tomorrow that examinations set by the Medical Council of Canada will include one on Medical Economics and Social Medicine, but soon or late that time will come and we should help it to arrive in an orderly fashion and without undue delay.

194. Your Committee strongly recommends that some action be taken at this meeting to see that representatives from this body meet with representatives of the Medical Council of Canada and the medical schools in an endeavour to make progress along these lines.

All of which is respectfully submitted.

WALLACE WILSON,
Chairman.

Approved.

REPORT OF THE COMMITTEE ON EPIDEMICS

Mr. Chairman and Members of General Council:—

195. The Special Committee on post-war epidemics as authorized by the executive at the Winnipeg meeting, has been engaged in the formation of a national committee composed of a representative from each of the following national organizations concerned with public health:—

The Canadian Medical Association
The Canadian Nurses' Association
The Canadian Hospital Council
The Canadian Red Cross Society
St. John Ambulance Association
The Department of Pensions and National Health
Each of the Provincial Health Departments
The Department of Indian Affairs

196. Contemporaneously we have arranged through these national organizations for the formation of nine provincial committees consisting of a representative of the provincial branch or division of each organization.

197. As pointed out in our first interim report it is intended that each provincial committee shall function as a completely autonomous organization with the sole responsibility for the planning and execution of suitable activity within their own province.

198. Arrangements are being made to have a central secretarial office located in the Department of Pensions and National Health in Ottawa. Through this office the national committee will be able to collect necessary information for transmission to the provincial committees.

199. It is hoped that each provincial committee will keep the national committee fully advised of its proceedings in order that information of interest and value may be made available to all the provincial committees.

200. It is gratifying to report that with a few exceptions the personnel of all committees is complete and as soon as the few remaining nominations are received your Committee will be in a position to inform each divisional chairman of the make up of his committee.

201. As chairman of this committee on organization may I express my thanks to the executive for many expressions of encouragement and helpful suggestions.

All of which is respectfully submitted.

O. C. TRAINOR,
Chairman.

Approved.

REPORT OF THE COMMITTEE ON CONSTITUTION AND BY-LAWS

Mr. Chairman and Members of General Council:—

202. Your Committee on Constitution and By-Laws has devoted its time and energies to the final compilation of the Constitution and By-Laws prior to publication. This task was simplified somewhat by the disappearance of Branch Associations. All such have now made themselves Divisions of the Canadian Medical Association.

203. Some other minor changes have been made:

(1) The addition of two new Standing Committees; and (2) Provision for admission to membership of certain persons not graduates of medicine but intimately associated with the teaching of medicine.

204. Your Committee submits the following proposed final revision of the Constitution and By-Laws. When adopted, some degree of permanency may be anticipated and the publication may be arranged.

AMENDMENTS TO CONSTITUTION AND BY-LAWS PROPOSED BY THE COMMITTEE ON CONSTITUTION AND BY-LAWS IN ACCORDANCE WITH ARTICLE XIII, PARAGRAPH 2, OF THE CONSTITUTION, AND CHAPTER XII, PARAGRAPH 2, OF BY-LAWS.

PRESENT CONSOLIDATED CONSTITUTION

ARTICLE I.—TITLE

This Association shall be known as The Canadian Medical Association, and when the French language is used, it shall be known as "L'Association Médicale Canadienne".

ARTICLE II.—OBJECTS

1. The promotion of health and the prevention of disease.
2. The improvement of medical services however rendered.
3. The maintenance of the integrity and honour of the medical profession.
4. The performance of such other lawful things as are incidental or conducive to the welfare of the public and of the medical and allied professions.

ARTICLE III.—ETHICS

The Code of Ethics of The Association (see Appendix) shall be such as may be adopted by The Association from time to time. A copy shall be supplied to each member of The Association.

ARTICLE IV.—MEMBERSHIP

The Association shall be composed of ordinary members, members-at-large, senior, non-resident and honorary members, elected by the method set forth in the By-Laws.

ARTICLE V.—BRANCH ASSOCIATIONS AND DIVISIONS

Each Provincial Medical Association, or the body representing organized medicine in a Province and enjoying all the rights and privileges of a medical association, may be recognized as a Branch Association, but any Branch Association, if it so desire, may change its relationship to The Canadian Medical Association and become a Division by the method set forth in the By-Laws. It shall then be known as The Canadian Medical Association (name of Province) Division.

ARTICLE VI.—AFFILIATED SOCIETIES

Any nationally or internationally organized medical, scientific, or sociological body may, subject to the approval of the General Council, become affiliated with The Canadian Medical Association. Affiliation shall be understood to imply the establishment of a friendly relationship with the affiliated organization. There shall be no obligation on the part of either party to the affiliation to sponsor policies or movements on the part of the other.

ARTICLE VII.—MEETINGS

The meetings of The Association shall be held in whole or in part on such occasions as may be provided for in the By-Laws.

PROPOSED CONSTITUTION

ARTICLE I.—TITLE

(Unchanged)

ARTICLE II.—OBJECTS

(Unchanged)

ARTICLE III.—ETHICS

(Unchanged)

ARTICLE IV.—MEMBERSHIP

(Unchanged)

ARTICLE V.—DIVISIONS

Each Provincial Medical Association (or the body representing organized medicine in a Province and enjoying all the right and privileges of a medical association) may become a Division of the Canadian Medical Association by the method set forth in the By-Laws. It shall then be known as The Canadian Medical Association (name of Province) Division.

ARTICLE VI.—AFFILIATED SOCIETIES

(Unchanged)

ARTICLE VII.—MEETINGS

(Unchanged)

PRESENT CONSOLIDATED CONSTITUTION	PROPOSED CONSTITUTION
ARTICLE VIII.—OFFICERS	ARTICLE VIII.—OFFICERS
(*a*) The Patron.	(Unchanged)
(*b*) The elective officers of The Association shall be a President, a President-Elect, a Chairman of the General Council, and an Honorary-Treasurer.	
(*c*) The appointive officers of The Association shall be a General Secretary and such other officers as may be appointed by the Executive Committee. The appointive officers shall have no voting power.	
ARTICLE IX.—THE GENERAL COUNCIL	ARTICLE IX.—THE GENERAL COUNCIL
The General Council shall consist of:	
(a) The Officers of The Association.	(*a*) (Unchanged).
(*b*) The President and Secretary or Joint Secretaries of each Branch Association or Division.	(*b*) The President and Secretary or Joint Secretaries of each Division.
(*c*) Delegates elected by Branch Associations and Divisions, amongst whom shall be included the members designated by Divisions for the Nominating Committee and the Executive Committee.	(*c*) Delegates elected by Divisions amongst whom shall be included the members designated by Divisions for the Nominating Committee and the Executive Committee.
Each Branch Association or Division shall be entitled to elect five delegates to serve on the General Council for its membership in The Canadian Medical Association of fifty or less; one additional delegate for its membership from fifty-one to one hundred; one additional delegate for its membership from 101 to 300; and thereafter one delegate for every 300 above 300. One of its representatives on General Council may be named by a Division as its nominee to the Nominating Committee of The Association.	Each Division shall be entitled to elect five delegates to serve on the General Council for its membership in The Canadian Medical Association of fifty or less; one additional delegate for its membership from fifty-one to one hundred; one additional delegate for its membership from 101 to 300; and thereafter one delegate for every 300 above 300. One of its representatives on General Council may be named by a Division as its nominee to the Nominating Committee of The Association.
(*d*) The Chairmen of the Standing Committees of The Association.	(*d*) (Unchanged).
(*e*) Past-Presidents of The Association.	(*e*) (Unchanged).
(*f*) Two representatives of the Department of Pensions and National Health, who are members of The Canadian Medical Association, one of whom shall be the Deputy Minister of Pensions and National Health.	(*f*) (Unchanged).
ARTICLE X.—COMMITTEES	ARTICLE X.—COMMITTEES
The Committees shall be:	(Unchanged).
(*a*) Standing.	
(*b*) Special.	
(*a*) The Executive Committee shall be elected by the General Council; the other standing committees shall be appointed by the Executive Committee.	(*a*) (Unchanged).
The standing committees are as follows:	
1. The Executive Committee.	(1 to 15 unchanged)
2. The Committee on Legislation.	
3. The Committee on Medical Education.	
4. The Post-Graduate Committee.	
5. The Central Program Committee.	
6. The Committee on Constitution and By-Laws.	
7. The Committee on Archives.	
8. The Committee on Public Health.	
9. The Committee on Ethics and Credentials.	
10. The Committee on Economics.	
11. The Committee on Pharmacy.	
12. The Committee on Hospital Service.	
13. The Cancer Committee.	
14. The Committee on Maternal Welfare.	
15. The Committee on Nutrition.	
	16. Committee on Industrial Medicine.
	17. Committee on Membership.
(*b*) Special Committees may be appointed by—	(*b*) (Unchanged).
(i) The President.	(i) (Unchanged).
(ii) The General Council.	(ii) (Unchanged).
(iii) The Executive Committee.	(iii) (Unchanged).
(iv) The Chairman of the General Council.	(iv) (Unchanged).
ARTICLE XI.—FUNDS	ARTICLE XI.—FUNDS
Funds for the purpose of The Association shall be raised in such manner as may be determined by the General Council.	(Unchanged)
ARTICLE XII.—THE ASSOCIATION YEAR	ARTICLE XII.—THE ASSOCIATION YEAR
The Association year shall be the calendar year.	(Unchanged)

PRESENT CONSOLIDATED CONSTITUTION

ARTICLE XIII.—AMENDMENTS

1. Notice of motion by one or more members to amend the Constitution must be placed in the hands of the General Secretary six months before the date of the annual meeting.

2. Amendments may be proposed by the General Council, the Executive Committee, or the Committee on Constitution and By-Laws without notice of motion, but the proposed amendments shall be published in the *Journal* in two issues preceding the annual meeting.

3. The Constitution shall be amended by a two-thirds vote of the members of the General Council in session present and voting.

ARTICLE XIV.—PROVINCIAL AUTONOMY

No provision of the Constitution or By-Laws herein set forth shall interfere with the status of a Branch Association or Division as a Provincial organization. As a Provincial body it shall have complete control of its own affairs. In the case of a Division, if it choose, it may retain its present name, as well as being known as Canadian Medical Association (name of Province) Division.

PROPOSED CONSTITUTION

ARTICLE XIII.—AMENDMENTS

1. (Unchanged).

2. (Unchanged).

3. (Unchanged).

ARTICLE XIV.—PROVINCIAL AUTONOMY

No provision of the Constitution or By-Laws herein set forth shall interfere with the status of a Division as a Provincial organization. As a Provincial body it shall have complete control of its own affairs. A Division, if it choose, may retain its present name as well as being known as Canadian Medical Association (name of Province) Division.

BY-LAWS

CHAPTER I.—DIVISIONS

A Branch Association may become a Division as outlined in Article V of the Constitution and enjoy all the rights and privileges of a Division in the following manner:

1. By intimating to The Canadian Medical Association in writing that it desires to become a Division.

2. By agreeing to amend, where necessary, its Constitution and By-Laws to place them in harmony with the Constitution and By-Laws of this Association.

3. By agreeing to collect from all of its Divisional Members who desire to be members of The Canadian Medical Association such annual fee as may from time to time be set for membership and remit same to this Association.

4. By agreeing to take such steps as seem proper to the Division to increase membership in The Association.

CHAPTER II.—MEMBERSHIP

Section 1—Ordinary Members

Every member in good standing in a Branch Association or a Division shall be automatically an ordinary member of The Canadian Medical Association on payment of the annual fee as levied by the General Council.

Section 2—Members-at-Large

Any graduate in medicine residing in Canada who is not a member of a Branch Association or of a Division may be accepted as a member of The Canadian Medical Association provided that, with his application, a certificate of approval from the executive body of the Branch Association or Division in the Province in which the applicant resides be furnished to the General Secretary. In the case of an applicant residing in Canada in a territory beyond the jurisdiction of a Branch Association or of a Division, the application must be endorsed by two members of The Canadian Medical Association. Such members shall be designated "Members-at-Large" and shall pay the annual fee as levied by the General Council.

BY-LAWS

CHAPTER I.—DIVISIONS

A Provincial Medical Association (or the body representing organized medicine in a Province and enjoying all the rights and privileges of a medical association) may become a Division as outlined in Article V of the Constitution and enjoy all the rights and privileges of a Division in the following manner:

1. (Unchanged).

2. (Unchanged).

3. By agreeing to collect from those of its members who desire to be members of The Canadian Medical Association such annual fee as may from time to time be set for membership and remit same to this Association.

4. (Unchanged).

CHAPTER II.—MEMBERSHIP

Section 1—Ordinary Members

Every member in good standing in a Division shall be automatically an ordinary member of The Canadian Medical Association on payment of the annual fee as levied by the General Council.

Section 2—Members-at-Large

Any graduate in medicine residing in Canada, or any teacher of the ancillary sciences in a school of medicine in Canada (not a graduate in medicine), who is not a member of a Division may be accepted as a member of The Canadian Medical Association provided that, with his application, a certificate of approval from the executive body of the Division in the Province in which the applicant resides be furnished to the General Secretary. In the case of an applicant residing in Canada in a territory beyond the jurisdiction of a Division, the application must be endorsed by two members of The Canadian Medical Association. Such members shall be designated "Members-at-Large" and shall pay the annual fee as levied by the General Council.

PRESENT CONSOLIDATED CONSTITUTION	PROPOSED CONSTITUTION
Section 3—Senior Members Any member of The Association in good standing for the immediately preceding ten-year period who has attained the age of seventy years is eligible to be nominated for senior membership by an ordinary member of The Association. He may be elected only by the unanimous approval of the members of the Executive Committee in session present and voting. Not more than ten such senior members may be elected in any one year. Senior members shall enjoy all the rights and privileges of The Association but shall not be required to pay any annual fee.	*Section 3—Senior Members* (Unchanged)
Section 4—Non-Resident Members Non-resident members may be elected by the Executive Committee from regularly qualified practitioners residing outside of Canada. They shall be required to pay not more than seventy-five per cent of the annual fee as levied by General Council.	*Section 4—Non-Resident Members* (Unchanged)
Section 5—Honorary Members Honorary members may be nominated by any member of The Association and shall be elected only by a unanimous vote of the Executive Committee or the General Council in session present and voting. Not more than five honorary members may be elected in any one year and at no time shall the list of living honorary members exceed twenty-five. Honorary members shall enjoy all the rights and privileges of The Association but shall not be required to pay any annual fee.	*Section 5—Honorary Members* (Unchanged)
Section 6—Discipline of Members Any member failing to conform to the Constitution and By-Laws and/or Code of Ethics (see Appendix) shall be liable to censure, suspension or expulsion. (*a*) Any member whose annual fee is directly payable to The Canadian Medical Association and whose annual fee has not been paid on or before the 31st day of March of the current year, may, without prejudice to his liability to The Association, be suspended from all privileges of membership. (*b*) Any member who has been found guilty of unprofessional conduct may, upon representation of the facts to the General Council, be censured, suspended or expelled from The Canadian Medical Association.	*Section 6—Discipline of Members* (Unchanged) (Unchanged) (Unchanged)
Section 7—Restoration to Membership A member, suspended or expelled, shall not be restored to membership until all arrears of fees (if directly payable to The Canadian Medical Association) have been paid, or until such requirements as may be determined by the General Council or the Executive Committee have been met.	*Section 7—Restoration to Membership* (Unchanged)
Section 8—Resignation from Membership Membership in The Association shall automatically cease only on suspension, expulsion or death. Resignation may be effected (1) in the case of a member of a Division by giving notice to the Secretary of the Division not less than one month before the beginning of the calendar year; (2) in the case of a member of a Branch Association or in the case of a member-at-large by giving notice directly to the General Secretary of The Canadian Medical Association one month before the next annual fee is due.	*Section 8—Resignation from Membership* Membership in The Association shall automatically cease only on suspension, expulsion or death. Resignation may be effected (1) in the case of a member of a Division by giving notice to the Secretary of the Division not less than one month before the beginning of the calendar year; (2) in the case of a member-at-large by giving notice directly to the General Secretary of The Canadian Medical Association one month before the next annual fee is due.
Section 9—Registration at Meetings No member shall take part in the proceedings of The Canadian Medical Association or in the proceedings of any of the Sections thereof or attend any part of the meeting until he has properly registered. Only members and invited guests are eligible to register and attend an annual meeting.	*Section 9—Registration at Meetings* (Unchanged)

PRESENT CONSOLIDATED CONSTITUTION	PROPOSED CONSTITUTION
CHAPTER III.—GUESTS AND VISITORS	CHAPTER III.—GUESTS AND VISITORS
Section 1—Visitors from outside of Canada	*Section 1—Visitors from outside of Canada*
Medical practitioners and other men of science residing outside of Canada may attend the annual meeting as guests of the President or of the General Council, or as visitors when vouched for by the General Secretary. They shall register with the General Secretary without payment of fee and may, after proper introduction, be allowed to participate in discussions.	(Unchanged)
Section 2—Medical Students attending Meetings	*Section 2—Medical Students attending Meetings*
Any hospital intern or medical student, when properly vouched for, may be admitted as a guest to the scientific meetings but shall not be allowed to take part in any of the proceedings unless specially invited by the Committee on Program to present a communication.	(Unchanged)
Section 3—Delegates from Affiliated Societies at Scientific Meetings	*Section 3—Delegates from Affiliated Societies at Scientific Meetings*
Two delegates from each affiliated society, one only of whom is required to be a member of this Association, may attend the scientific meetings.	(Unchanged)
Section 4—Delegates from Affiliated Societies at Meetings of General Council	*Section 4—Delegates from Affiliated Societies at Meetings of General Council*
Two delegates from each affiliated society, provided one delegate is a member of this Association, may be invited by the Executive Committee to attend meetings of the General Council. They may, at the request of the Chairman, take part in the deliberations but shall have no voting power.	(Unchanged)
CHAPTER IV.—ANNUAL MEETINGS	CHAPTER IV.—ANNUAL MEETINGS
Section 1—Time and Place of Meetings	*Section 1—Time and Place of Meetings*
The time and place of meetings shall be decided by the General Council or the Executive Committee, and shall be announced as early as possible.	(Unchanged)
Section 2—Arrangements for Annual Meetings	*Section 2—Arrangements for Annual Meetings*
When the Canadian Medical Association meets in any Province where there is a Branch Association or Division, the meeting of that Branch Association or Division for that year shall be for business purposes only. The local arrangements shall be under the direction of the Executive Committee of the Canadian Medical Association, which may enlist the assistance of the Branch Association or Division or one of its component societies. The Canadian Medical Association assumes full control of the proceedings of the meeting and of all financial obligations save entertainment.	When the Canadian Medical Association meets in a Province, the meeting of the Division of that Province for that year shall be for business purposes only. The local arrangements shall be under the direction of the Executive Committee of the Canadian Medical Association, which may enlist the assistance of the Division or one of its component societies. The Canadian Medical Association assumes full control of the proceedings of the meeting and of all financial obligations save entertainment.
Section 3—Type of Program	*Section 3—Type of Program*
The program of the meeting may consist of business sessions, general and sectional scientific sessions, and any other sessions which may be decided upon by the Executive Committee.	(Unchanged)
Section 4—Presiding Officer	*Section 4—Presiding Officer*
The President or some person designated by him shall preside at all general meetings.	(Unchanged)
Section 5—Rules of Order	*Section 5—Rules of Order*
The Rules of Order which govern the proceedings of the House of Commons of Canada shall be the guide for conducting all meetings of The Association.	(Unchanged)
CHAPTER V.—MEETINGS OF SECTIONS	CHAPTER V.—MEETINGS OF SECTIONS
Section 1—Sectional Scientific Sessions	*Section 1—Sectional Scientific Sessions*
The Executive Committee shall determine what scientific sections shall hold sessions at any annual meeting.	(Unchanged)
Section 2—Appointment of Sectional Officers	*Section 2—Appointment of Sectional Officers*
The Chairman and Secretary for each scientific Section shall be appointed by the Executive Committee.	(Unchanged)
Section 3—Presiding Officers at Meetings of Sections	*Section 3—Presiding Officers at Meetings of Sections*
The Chairman of the Section, or some one designated by him, shall preside at all meetings of the Section.	(Unchanged)

PRESENT CONSOLIDATED CONSTITUTION	PROPOSED CONSTITUTION
Section 4—Duties of Secretaries of Sections	*Section 4—Duties of Secretaries of Sections*
The Secretary of the Section shall keep a correct record of the transactions and shall transmit it to the General Secretary for insertion in the Minute Book provided for the purpose.	(Unchanged)
CHAPTER VI.—OFFICERS AND EXECUTIVE COMMITTEE	CHAPTER VI.—OFFICERS AND EXECUTIVE COMMITTEE
Section 1—Appointment of Nominating Committee	*Section 1—Appointment of Nominating Committee*
(*a*) The General Council at its first session at the time of the annual meeting shall elect by ballot from among its members present a Nominating Committee of NINE, not including the President who shall be *ex officio* a member of the Committee and the Chairman thereof.	(*a*) (Unchanged).
(*b*) Each Division in The Association is entitled to appoint from amongst its delegates to General Council one member to the Nominating Committee. Provided this nomination be made in writing to the General Secretary prior to the annual meeting and the delegate so nominated be present, he shall be declared elected to membership on the Nominating Committee.	(*b*) (Unchanged).
(*c*) Upon completion of the election of Divisional Representatives as provided for in clause (*b*) of this section, any vacancies which remain shall be filled by nominations from the floor. The list so nominated shall contain the name of at least one member of each Branch Association represented at this session. The candidate of a Branch Association who obtains the highest vote amongst the candidates of that Branch Association shall be declared elected. The remaining members, if any, shall be declared elected by majority vote. This election shall be declared on a single ballot and the Chairman of General Council shall if necessary give the casting vote or votes.	(*c*) Upon completion of the election of Divisional Representatives as provided for in clause (*b*) of this section, any vacancies which remain shall be filled by nominations from the floor. Election shall be by majority vote, on a single ballot and the Chairman of General Council shall if necessary give the casting vote.
Section 2—Duties of Nominating Committee	*Section 2—Duties of Nominating Committee*
The Nominating Committee shall meet on the day of its election and submit to a later session of the General Council:	(Unchanged).
1. Nomination of the following officers of The Association: A President-Elect, a Chairman of the General Council and an Honorary-Treasurer.	1. (Unchanged).
2. Nomination of an Executive Committee which, in addition to those who are members *ex officio* (see Chapter VIII, Section 4), shall consist of thirteen members drawn from General Council and geographically distributed as follows: three shall be resident in each Province in which an office of The Association is located and one shall be resident in each of the other provinces.	2. (Unchanged).
3. Nomination from members of General Council of nine alternates for the elected members of the Executive Committee. There shall be one alternate nominated from each Province. The function of the alternates shall be to act in the place of an elected member of the Executive Committee who is absent because of death or illness or from cause acceptable to the President.	3. (Unchanged).
4. At its session, the Nominating Committee may receive in writing,	4. (Unchanged).
(1) Each Division's official nomination of the candidate or candidates for representation on the Executive Committee to which the Division is entitled; and also,	
(2) Each Division's official nomination of one alternate who will act in the absence by reason of death or illness or from cause acceptable to the President, of the member or one of the members representing that Division. In the event of such an official nomination by a Division being rejected by the Nominating Committee the reasons for such action shall be incorporated in its report to General Council.	
5. *Rules of Procedure*—The Committee shall be called to order by the President as Chairman of the Committee. In the absence of the President, the General Secretary shall convene the Committee and request the Committee to select, by open vote, the Chairman. The Committee shall then proceed to carry out its duties by open vote. In case of a tie vote the Chairman shall have the casting vote in addition to the vote to which he is entitled as a member of the Committee. When called for, the report of the Committee shall be presented to the General Council by the General Secretary.	*5—Rules of Procedure*
	(Unchanged)

PRESENT CONSOLIDATED CONSTITUTION	PROPOSED CONSTITUTION
Section 3—Election of Officers and Executive Committee	*Section 3—Election of Officers and Executive Committee*
When the report of the Nominating Committee has been received by the General Council in session, other nominations may also be received from the floor. A ballot shall then be taken for each of the offices in turn and also for elective membership of the Executive Committee by Provinces.	(Unchanged)
CHAPTER VII.—DUTIES OF OFFICERS	CHAPTER VII.—DUTIES OF OFFICERS
Section 1—Duties of the President	*Section 1—Duties of the President*
The President shall preside at the general sessions of The Association and shall perform such duties as custom and parliamentary usage require. He shall deliver a presidential address. He shall be a member *ex officio* of all committees of The Association. He shall be reimbursed for his legitimate travelling expenses while engaged in the business of The Association.	(Unchanged)
Section 2—Duties of the President-Elect	*Section 2—Duties of the President-Elect*
The President-Elect shall be installed and shall assume the office of President at the first general session of the Annual Meeting next following his election to the office of President-Elect. He shall be a member *ex officio* of all committees of The Association excepting the Nominating Committee. He shall be reimbursed for his legitimate travelling expenses while engaged in the business of The Association.	(Unchanged)
Section 3—Duties of the Chairman of General Council	*Section 3—Duties of the Chairman of General Council*
The Chairman of the General Council shall preside at all meetings of the General Council. He shall be reimbursed for his legitimate travelling expenses while engaged in the business of The Association. He shall be a member *ex officio* of all Committees, excepting the Nominating Committee.	(Unchanged)
Section 4—Duties of the Honorary-Treasurer	*Section 4—Duties of the Honorary-Treasurer*
The Honorary-Treasurer shall be the custodian of all moneys, securities and deeds which are the property of The Association. He shall pay by cheque only. Such cheques shall be signed by two persons authorized by the Executive Committee to sign cheques of The Association and shall be covered by voucher. He shall prepare an annual financial statement audited by a chartered accountant. He shall furnish a suitable bond for the faithful discharge of his duties. The cost of the bond shall be borne by The Association. He may receive for his services an honorarium to be determined by the General Council. He shall be reimbursed for his legitimate travelling expenses while engaged in the business of The Association. He shall be a member *ex officio* of the Executive Committee.	(Unchanged)
Section 5—Duties of the General Secretary	*Section 5—Duties of the General Secretary*
The General Secretary shall be the Secretary also of the General Council and of the Executive Committee of The Association. He shall also be a member *ex officio* of all Committees of The Association. He shall give due notice of the time and place of all annual and special general meetings, by publishing the same in the official *Journal* of The Association, or, if necessary, by notice to each member. He shall keep the minutes of the meetings of the General Council and of the Executive Committee in seperate books and shall provide minute books for the secretaries of the different sections which he shall require to be properly attested by the secretaries thereof. He shall notify the officers and members of committees of their appointment and of their duties in connection therewith. He shall publish the official program of each annual meeting. He shall perform such other duties as may be required of him by the President, the General Council or the Executive Committee. All his legitimate travelling expenses shall be paid for him out of the funds of The Association and he shall receive for his services a salary to be determined by the Executive Committee.	(Unchanged)

PRESENT CONSOLIDATED CONSTITUTION	PROPOSED CONSTITUTION
CHAPTER VIII.—THE GENERAL COUNCIL	CHAPTER VIII.—THE GENERAL COUNCIL
Section 1—Meetings of the General Council	*Section 1—Meetings of the General Council*
The General Council shall meet for at least the first two days of the annual meeting of The Association and thereafter, while The Association is in session, at the call of the Chairman. Before the close of the annual meeting it shall elect the officers and the Executive Committee and select the place for the next annual meeting, or, if thought advisable, for meetings up to three years in advance.	(Unchanged)
Section 2—Special Meetings of General Council	*Section 2—Special Meetings of General Council*
During the interval between annual meetings the General Council shall meet at the call of the Executive Committee. For all such meetings of the General Council due notice shall be sent to each member, stating the purpose of the meeting. The Executive Committee, if it so decide, instead of calling such meetings of the General Council may refer important questions to the General Council and obtain its decision by means of a mail ballot. In the event of a mail ballot being taken, two-thirds majority vote shall govern.	(Unchanged)
Section 3—Duties of the General Council	*Section 3—Duties of the General Council*
The General Council shall have supervision of all properties and of all financial affairs of The Association. It shall, through its officers, conduct all business and correspondence, and shall keep a record of all meetings and the receipt and expenditure of all funds, and shall report upon same in the *Journal* after the annual meeting.	(Unchanged)
Section 4—The Executive Committee may act for the General Council	*Section 4—The Executive Committee may act for the General Council*
In order that the business of The Association may be facilitated during the interval between meetings of the General Council, the Executive Committee shall meet from time to time at the call of its Chairman, and shall have all the rights and powers of the General Council. It shall conduct all necessary business. In case of a vacancy in any office on account of death or otherwise, it shall have power to appoint a successor. In case of a vacancy occurring in the Executive Committee itself by death or otherwise, it shall have power to appoint a successor upon receiving an official nomination from the Branch Association or Division concerned.	In order that the business of The Association may be facilitated during the interval between meetings of the General Council, the Executive Committee shall meet from time to time at the call of its Chairman, and shall have all the rights and powers of the General Council. It shall conduct all necessary business. In case of a vacancy in any office on account of death or otherwise, it shall have power to appoint a successor. In case of a vacancy occurring in the Executive Committee itself by death or otherwise, it shall have power to appoint a successor upon receiving an official nomination from the Division concerned.
The President, the President-Elect, the Chairman of the General Council, the Honorary-Treasurer, the General Secretary, the Editor and the Managing Editor shall be members *ex officio* of the Executive Committee, but only the elective officers shall have the right to vote.	(Unchanged)
CHAPTER IX.—COMMITTEES	CHAPTER IX.—COMMITTEES
Section 1—Duties and Powers of the Executive Committee	*Section 1—Duties and Powers of the Executive Committee*
The Executive Committee shall hold one or more sessions before the close of the annual meeting at which it is elected. At its first meeting it shall elect its Chairman and appoint the Chairmen of the Standing Committees for the ensuing year. Between the meetings of the General Council, the Executive Committee shall represent the General Council in all its business affairs and shall exercise all the rights and powers of the General Council. The Executive Committee shall report to the General Council at the annual meeting and at such other times as the Chairman of the General Council may request.	(Unchanged)
The Executive Committee may meet when and where it may determine. On the request in writing of any three members (with voting power) of the Executive Committee, the Chairman shall call a special meeting. Seven members (with voting power), exclusive of the Chairman, shall constitute a quorum for the transaction of business.	
The Executive Committee shall be responsible for the appointment of the General Secretary, the Editor, the Managing Editor, the Associate Secretaries, and any other appointive officers, and shall fix their salaries.	

PRESENT CONSOLIDATED CONSTITUTION	PROPOSED CONSTITUTION
The Executive Committee shall have charge of the publication of the official *Journal* of The Association and of all published proceedings, transactions, memoirs, essays, papers and programs of The Association. The Editor and Managing Editor shall present annual reports to the General Council and interim reports at each meeting of the Executive Committee. The Editor shall be reimbursed for his legitimate travelling expenses incurred on Association business. The Executive Committee may appoint Editorial Boards to assist the Editors. The Executive Committee shall appoint the Auditor and shall have the accounts of the Honorary-Treasurer audited annually, or more often if desirable, and shall make an annual report on the same to the General Council. Each member of the Executive Committee shall be reimbursed for his legitimate travelling expenses incurred in attending meetings of the Executive Committee other than the first meeting or meetings of the new Executive Committee, which may be held before the close of the annual meeting.	
Section 2—Committee on Legislation Matters relating to medical legislation, Federal or Provincial, and matters requiring legislative action arising within The Association, may be referred by the Executive Committee to the Committee on Legislation for consideration and advice.	*Section 2—Committee on Legislation* (Unchanged)
Section 3—Committee on Medical Education To the Committee on Medical Education shall be referred all matters pertaining to medical colleges and medical education. It shall report upon the condition of medical education throughout Canada and upon any proposed change, and may suggest methods for the improvement of medical education.	*Section 3—Committee on Medical Education* (Unchanged)
Section 4—Post-Graduate Committee To the Post-Graduate Committee shall be delegated the responsibility of carrying out the post-graduate plans of The Association.	*Section 4—Post-Graduate Committee* (Unchanged)
Section 5—Committee on Program This Committee, with the assistance of the Chairman and Secretary of each scientific section, shall have complete charge of the preparation of the scientific program for the annual meeting.	*Section 5—Committee on Program* (Unchanged)
Section 6—Committee on Constitution and By-Laws To the Committee on Constitution and By-Laws shall be referred all matters relating to the subject before action thereon is taken by the General Council.	*Section 6—Committee on Constitution and By-Laws* (Unchanged)
Section 7—Committee on Archives The Committee on Archives shall be responsible for collecting as far as possible (*a*) the obituaries of members dying since the last annual meeting; (*b*) all documents and information relating to the various members and activities of The Canadian Medical Association which are deemed worthy of preservation. The Editor of the *Journal* shall be a member *ex officio* of this Committee.	*Section 7—Committee on Archives* (Unchanged)
Section 8—Committee on Public Health It shall be the duty of this committee to study and report upon all matters of Public Health which, in the opinion of the Committee, should engage the attention of The Association. To the Committee may be delegated such duties in relation to Public Health as in the opinion of General Council or Executive Committee should be undertaken by the Committee on behalf of The Association.	*Section 8—Committee on Public Health* (Unchanged)
Section 9—Committee on Ethics and Credentials To this Committee all matters of ethics and special questions of credentials shall be referred for consideration and report to the General Council or the Executive Committee.	*Section 9—Committee on Ethics and Credentials* (Unchanged)

PRESENT CONSOLIDATED CONSTITUTION	PROPOSED CONSTITUTION
Section 10—Committee on Economics It shall be the duty of the Committee on Economics, excepting where otherwise provided, to deal with (*a*) social legislation which includes medical services or benefits presumably for medical services; (*b*) remuneration and employment of physicians by lay bodies, hospital or official bodies, including Federal, Provincial and Municipal Governments; (*c*) to report thereon with such recommendations as it may see fit to the General Council.	*Section 10—Committee on Economics* (Unchanged)
Section 11—Committee on Pharmacy It shall be the duty of the Committee on Pharmacy to deal with (*a*) all matters arising out of the British Pharmacopœia or any Canadian Formulary or Pharmacopœia; (*b*) all matters arising out of the drug section of the Food and Drugs Act, the Narcotic Act, or the Patent and Proprietary Medicine Act; and (*c*) any inquiries from members of The Association relating to the use or standards of drugs.	*Section 11—Committee on Pharmacy* (Unchanged)
Section 12—Hospital Service Committee This Committee shall act in an advisory capacity to the Hospital Service Department of The Association.	*Section 12—Hospital Service Committee* (Unchanged)
Section 13—Committee on Cancer This Committee shall act in an advisory capacity on all matters relating to the study and control of cancer.	*Section 13—Committee on Cancer* (Unchanged)
Section 14—Committee on Maternal Welfare To this Committee shall be referred for consideration all matters concerning maternal welfare. It shall be the duty of the committee to devise and recommend to General Council ways and means for the reduction of maternal mortality and the improvement of maternal welfare.	*Section 14—Committee on Maternal Welfare* (Unchanged)
Section 15—Committee on Nutrition It shall be the duty of the Committee on Nutrition, subject to the approval of the Executive Committee, (*a*) to initiate studies upon the nutritional needs of the public of Canada; (*b*) upon request from public bodies, to act in an advisory capacity upon nutritional problems; and (*c*) to adopt measures, educational or otherwise, likely to improve the nutritional standards of the the public of Canada.	*Section 15—Committee on Nutrition* (Unchanged)
See New Section 16.	*Section 16—Committee on Industrial Medicine* It shall be the duty of the Committee on Industrial Medicine: 1. To define the objectives, scope and methods of Industrial Medicine. 2. To determine what medical services now exist in industry, what need exists and what facilities in personnel are available to meet it. 3. To consider and suggest what qualifications and training, undergraduate and postgraduate, are necessary for the physician, nurse and first aid worker in industry. 4. To assist in keeping the medical profession informed of developments in this field with a view to improving industrial health.
See New Section 17.	*Section 17—Committee on Membership* It shall be the duty of the Committee on Membership to initiate such plans as are likely to increase the Membership of the Canadian Medical Association, with the eventual objective of enlisting every Canadian doctor in the Association.
Section 18—Special Committees Each Special Committee shall assume, by direction, such duties as are allotted to it, and shall make progress reports to the Executive Committee at each of the meetings of that body or at any other time that such reports may be required by the President, the Chairman of the General Council, or the Executive Committee.	*Section 18—Special Committees* (Unchanged)
Section 19—Reports of Committees Reports of all Committees shall be printed and mailed to all members of the General Council at least one week before the annual meeting.	*Section 19—Reports of Committees* (Unchanged)

PRESENT CONSOLIDATED CONSTITUTION	PROPOSED CONSTITUTION
Section 20—Limitations of Committees re Finances	*Section 20—Limitations of Committees re Finances*
No Committee shall expend any moneys or incur any indebtedness or obligation on behalf of The Association without the sanction of the General Council or the Executive Committee.	(Unchanged)
CHAPTER X.—ADDRESSES AND PAPERS	CHAPTER X.—ADDRESSES AND PAPERS
Section 1—Addresses at Annual Meeting	*Section 1—Addresses at Annual Meeting*
All addresses delivered at an annual meeting shall immediately become the property of The Association, to be published or not, in whole or in part, as deemed advisable, in the *Journal* of The Association. Any other arrangements for their publication must have the consent of the author or of the reader of the same and of the Editor of the *Journal*.	(Unchanged)
Section 2—Publication of Papers Presented at Annual Meeting	*Section 2—Publication of Papers Presented at Annual Meeting*
All papers, essays, photographs, diagrams, etc., presented in any Section shall become the property of The Association to be published in the *Journal* of The Association or not, as determined by the Editor, and they shall not be otherwise published except with the consent of the author and of the Editor of the *Journal*.	(Unchanged)
Section 3—Disposition of Papers Presented at Annual Meeting	*Section 3—Disposition of Papers Presented at Annual Meeting*
Each author of a paper read before any Section shall, as soon as it has been read, hand it with any accompanying diagrams, photographs, etc., to the Secretary of the Section before which it has been presented. The Secretary shall endorse thereon the fact that it has been read in that Section, and shall then transmit it to the Editor of the *Journal*.	(Unchanged)
CHAPTER XI.—PROVISIONS FOR DISCIPLINE	CHAPTER XI.—PROVISIONS FOR DISCIPLINE
Section 1—If any Member of The Association, after due inquiry by the Executive Committee shall be judged to have been guilty of disgraceful conduct in any professional respect, he shall be liable to censure, suspension or expulsion from membership in The Association by resolution of the Executive Committee, confirmed by a three-fourths vote at the next annual meeting of General Council.	*Section 1*—(Unchanged).
Section 2—Should any member of The Association be convicted of any criminal offence, or have his name removed from the register of the Medical Council of Canada, or of the licensing body of any Province of Canada, because of felonious or criminal act, or disgraceful conduct in any professional respect, the Executive Committee may, by resolution, confirmed at the next ensuing annual meeting of the General Council, by a three-fourths vote of those present, censure or suspend or expel such persons from membership in The Association.	*Section 2*—(Unchanged).
Section 3—Any member suspended or expelled by resolution as aforesaid, shall thereby forfeit all his rights and privileges as a member of The Association.	*Section 3*—(Unchanged).
Section 4—Any member suspended or expelled by resolution as aforesaid, shall, subject to conditions imposed by the Executive Committee, be restored to membership upon resolution of the Executive Committee, confirmed at the next ensuing annual meeting of General Council.	*Section 4*—(Unchanged).
Section 5—By subscribing to the application for membership under the terms of the By-Laws and Code of Ethics (see Appendix) and becoming a member of The Association, every member attorns to these By-Laws, and agrees to such right of discipline as aforesaid, and thereby specifically waives any right or claim to damages in the event of his being so disciplined.	*Section 5*—(Unchanged).

PRESENT CONSOLIDATED CONSTITUTION	PROPOSED CONSTITUTION
CHAPTER XII.—AMENDMENTS	CHAPTER XII.—AMENDMENTS
Section 1—Notice of motion by one or more members to amend the By-Laws, must be placed in the hands of the General Secretary three months before the date of the annual meeting.	*Section 1*—(Unchanged).
Section 2—Amendments may be proposed by the General Council, the Executive Committee, or the Committee on Constitution and By-Laws without notice of motion, but the proposed amendments shall be published in the *Journal* in two issues preceding the annual meeting.	*Section 2*—(Unchanged).
Section 3—The By-Laws shall be amended by a two-thirds vote of the members of the General Council in session present and voting.	*Section 3*—(Unchanged).
CHAPTER XIII—THE OFFICE	CHAPTER XIII—THE OFFICE
Until changed by General Council, the offices of The Association shall be at Toronto and Montreal.	(Unchanged)
NOTE: Throughout these By-Laws, masculine designations are to be interpreted as including feminine.	

Approved.

All of which is respectfully submitted.

R. I. HARRIS,
Chairman.

It was agreed that the Constitution and By-Laws be printed for distribution to the members of the Association.

OFFICERS

The following are the officers of the Association for the ensuing year:

President—Dr. A. E. Archer, Lamont, Alta.

President-Elect—Dr. D. Sclater Lewis, Montreal, Que.

Chairman of General Council and of the Executive Committee—Dr. T. H. Leggett, Ottawa, Ont.

Honorary Treasurer and Managing Editor—Dr. Frank S. Patch, Montreal, Que.

General Secretary—Dr. T. C. Routley, Toronto, Ont.

Editor—Dr. H. E. MacDermot, Montreal, Que.

Consulting Editor—Dr. A. G. Nicholls, Montreal, Que.

Associate Secretary—Dr. G. Harvey Agnew, Toronto, Ont.

DIVISIONAL REPRESENTATIVES ON THE EXECUTIVE COMMITTEE

British Columbia—Dr. Murray Blair, Vancouver.
Alternate—Dr. C. H. Hankinson, Prince Rupert.

Alberta—Dr. F. T. Campbell, Calgary.
Alternate—Dr. J. W. Scott, Edmonton.

Saskatchewan—Dr. O. E. Rothwell, Regina.
Alternate—Dr. A. C. Scott, Indian Head.

Manitoba—Dr. F. G. McGuinness, Winnipeg.
Alternate—Dr. H. D. Kitchen, Winnipeg.

Ontario—Dr. Harris McPhedran, Toronto.
Dr. H. M. Yelland, Peterborough.
Dr. F. A. Brockenshire, Windsor.
Alternate—Dr. A. B. Whytock, Niagara Falls.

Quebec—Dr. Léon Gérin-Lajoie, Montreal.
Dr. W. H. Delaney, Quebec.
Dr. A. W. Young, Montreal.
Alternate—Dr. E. S. Mills, Montreal.

New Brunswick—Dr. A. F. VanWart, Fredericton.
Alternate—Dr. C. J. Veniot, Bathurst.

Nova Scotia—Dr. H. K. MacDonald, Halifax.
Alternate—Dr. J. G. Lynch, Sydney.

Prince Edward Island—Dr. W. J. P. MacMillan, Charlottetown.
Alternate—Dr. J. F. McNeil, Summerside.

CHAIRMEN OF COMMITTEES

Archives—Dr. H. E. MacDermot, Montreal.
Awards, Scholarships and Lectures—Dr. Duncan Graham, Toronto.
Constitution and By-Laws—Dr. R. I. Harris, Toronto.
Advisory Committee to Department of Hospital Service—Dr. W. H. Delaney, Quebec.
Epidemics—Dr. O. C. Trainor, Winnipeg.
Vice-Chairman—Dr. T. H. Leggett, Ottawa.
Economics—Dr. Harris McPhedran, Toronto.
Credentials and Ethics—Dr. Ross Mitchell, Winnipeg.
Hospital Internships—Dr. Alfred Haywood, Vancouver.
Industrial Medicine—Dr. J. G. Cunningham, Toronto.
Laboratory Technicians—Dr. James Miller, Kingston.
Legislation—Dr. C. J. Veniot, Bathurst.
Maternal Welfare—Dr. J. D. McQueen, Winnipeg.
Membership—Dr. G. S. Fahrni, Winnipeg.
Medical Education—Dr. O. W. Niemeier, Hamilton.
Meyers Memorial—Dr. George Boyer, Toronto.
Nutrition—Dr. F. F. Tisdall, Toronto.
Pharmacy—Dr. V. E. Henderson, Toronto.
Postgraduate—Dr. Duncan Graham, Toronto.
Public Health—Dr. M. R. Bow, Edmonton.
Advisory Committee on Finance—Dr. Frank S. Patch, Montreal.
Cancer—Dr. J. S. McEachern, Calgary.
Central Program—Dr. Duncan Graham, Toronto.

All of which, on behalf of General Council of the Canadian Medical Association, is respectfully submitted.

T. C. ROUTLEY,
General Secretary.